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INCORPORATING

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Manpower Shortages

THE most disturbing feature of the report of the Select Committee on Estimates published last week is its emphasis on the shortage of labour in relation to the rearmament programme, and the growing insufficiency in recent months of skilled and technical manpower. The Ministry of Supply has reported great difficulty in securing even a small number of skilled as well as unskilled workers. The industries principally affected are aircraft and machine tool manufacturers and the railways, in which last, in the areas most affected, the number of vacancies increased 20 per cent. in the first five months of this year. The Committee expresses concern at this, in view of the need for the efficient movement of raw materials and finished equipment for the defence programme. The general labour position is stated to be the more difficult because in the present year many fewer children will reach the age of 15 than in 1939, and fewer boys will reach the age of 18 than in that year. The number of 15-year olds will not begin to increase until 1957, nor those aged 18 until 1960. Dealing with skilled and technical manpower, the Select Committee points out that even in the motor industry, where, with attractive conditions of employment,

under-employment is understood to exist, there is a serious shortage of skilled labour. The outlook for British Railways is not encouraging. If there is a dearth of skilled labour in those industries which have been attracting labour away from the railways, as around Birmingham, where the railway manpower shortage is most acute, it is unlikely that the railways will be able even to make good current wastage by recruiting. Meanwhile, there has been, as we pointed out last week, considerable delay—apparently due to trades union intransigence—in reaching agreement with the unions on the Railway Executive proposals for economy in manpower. Nor has the Government made any announcement on deferment of military service for railwaymen, which would alleviate the situation. If the manpower position deteriorates much further, the Government may have to consider direction of labour, or perhaps a disinflationary policy resulting in reduced demands in the home market from those non-essential industries which are retaining so much skilled labour; this latter course, however, given the specialised nature of skilled railway employment, might not greatly help the railways except as a long-term measure.

Compensation to Railway Stockholders

IN our last week's issue we drew attention to a leading article in *The Manchester Guardian* which summarised the labour situation on British Railways with particular reference to the evil of any reduction by the State of its financial liability to former shareholders of nationalised railways. The reply of the Editor of the *Railway Review*, Mr. Frank G. Moxley, in a letter to *The Manchester Guardian* last week, demonstrates blindness both to realities and to moral obligations. Mr. Moxley objects to a subsidy—but only as a short-term measure; a subsidy now, he maintains, when the railways cannot pay compensation stock interest whilst "giving the workers adequate standards, would create in the minds of the workers the impression that the Exchequer was . . . paying the shareholders out of the national purse"—as though such payment were intrinsically wrong. Regarding the reduction of compensation payments he suggests that "workers in an industry . . . supposed to be in the process of socialisation ought to be regarded before those who do nothing more useful than draw interest." He goes on to suggest that it is psychologically unwise and economically unsound to guarantee a fixed interest return which exceeds the working surplus of any undertaking. Apart from the moral obligation and of the fact that many railway shareholders are themselves working people, Mr. Moxley's statements betray a lamentable ignorance of the efforts made by the former railway companies to meet their obligations, and of the financial basis of the Transport Act.

A Compromise Plan for the G.N.R.(I.)?

THE Dublin Minister for Industry & Commerce met his opposite number in Belfast on August 23 for further talks on the problem of the Great Northern Railway (Ireland). The fact that the conference was attended by the heads of the financial departments of both Governments lends colour to the belief that the proportion of the £3,900,000 compulsory purchase price rejected by the stockholders—which each Government should bear, was discussed. The talks were the sixth on the subject between the Governments; four have been in Dublin. It is also believed that a compromise plan was debated; under it the Belfast-Dublin line would be managed by a joint committee, the rest of the system north of the border would go to the Ulster Transport Authority, and that in the Republic would be taken over by Coras Iompair Eireann. This solution, however, is complicated by the number of crossings of the border which the railway now makes, though the joint committee might administer these links as well as the main line. Other problems for solution are the payment of pensions to retired employees and the proportion of employment as between the North and South—with the works at Dundalk, the majority of G.N.R.(I.) staff is in the Republic.

Shortage of Steel

THERE are indications that shortages of alloy steel in the engineering industry in this country are sometimes as high as 80 per cent., and a shortfall of 30 per cent. in supplies of mild steel is estimated for the latter half of this year. The consequences of this are twofold: the export industry is handicapped in competition in overseas markets by having to quote for extended deliveries; and basic industries in this country, including those providing plant for coal mines and power stations, are beginning to be starved of what they need. If this situation, which does not at the moment seem to be acute, deteriorates, as is likely in the next few months, much of the progress made in recent years in increasing productivity may be undone. Steps taken to deal with the situation include the setting up of a committee within the industry to assess the degree and probable duration of the shortages. The measures to control carbon steel which are introduced by the Government in December, as announced in our August 24 issue, do not apply to building and civil engineering firms, which will be advised by the Ministry of Works how to apply for their requirements.

British Transport Commission Statistics

AN increase of 3.4 per cent. over the corresponding period of last year in British Railways passenger traffic is shown for Period 7, which covers four weeks of summer seasonal traffic ending July 15. Pending the analysis of passenger journeys and receipts in the calendar months of June and July, which will not be available for some weeks, it is probably true to say that the rise in passenger receipts is only in respect of "non-essential" travel—unless perhaps due in some degree to intensified personnel movement in the fighting services—and caused probably by an increase in excursion traffic; the latter in its turn may have been occasioned by increase in the cheap-fare facilities offered, including, no doubt, Festival trips. The analysis of passenger receipts in May, when total receipts were some 2 per cent. below those in May, 1950, shows that whilst full-fare receipts rose 5 per cent., those from cheap fares rose nearly 25 per cent. compared with last year, and those from monthly returns fell 13 per cent. Monthly return ticket receipts, however, were the largest single item in British Railways passenger takings in May, followed by "other descriptions" and cheap tickets.

Overseas Railway Traffics

THE advance in operating expenses of both the Canadian Pacific and Canadian National railways during July was double the accompanying improvement in gross earnings and resulted in a substantial drop in net revenue. C.P.R. working expenses were £1,772,000 higher at £11,550,000 and net earnings fell by £899,000 to £382,000. On the C.N.R. the rise in operating expenses amounted to £1,743,000 at £16,429,000, and net revenue at £1,252,000 compares with £3,100,000 for the same month of 1950. On the aggregate C.N.R. net revenue for the current 30 weeks is £237,000 higher at £7,835,000, but C.P.R. net earnings are down by £55,000 at £4,275,000. Antofagasta (Chili) & Bolivia traffics continued to improve over those for the previous year in the fortnight ended August 24, when there was a total advance by £86,350 to £241,220.

Refrigerator Rolling Stock on Exhibition

SOME idea of the increasing scope and importance of internal and international refrigerated traffic by rail was afforded by the display of insulated and refrigerator rolling stock arranged by British Railways at Kensington Olympia Station this week, during the International Congress of Refrigeration in London which lasts until September 11. Of the eleven containers and vans on exhibition perhaps the greatest interest was shown in the refrigerator van owned by the Spanish Transfesa Company and operated internationally by the Interfrigo Company. Vans of this type are fitted with detachable axles,

enabling them to run from Spain into France; some have already worked through to London via the Dunkirk-Dover ferry, as recorded in our columns, and development of traffic between Spain and Great Britain by this means will be watched with attention. The container facilities which British Railways offer for perishable and other traffic both within this country and between it and the Continent were also well exemplified. Door-to-door transport service between this country and the Continent by railway containers is operated on no less than 22 routes.

Importance of Proper Packing

ONE of the most common reasons for loss of, or damage to, goods in transit by rail is inadequate packing and addressing. Many of the claims which railways have to pay for goods lost or damaged are preventable. The Rhodesia Railways have brought out a folder stressing the contribution which the consignor can make to safe carriage. The package, which may have to stand several handlings during its journey by rail, must be able to sustain the weight of its contents. In designing a standard container expressly for a commodity, the size and weight suitable for easy handling and stowage should be borne in mind. Long nails, wiring, wire mesh in crates, steel banding, and stitching the mouths of sacks all deter the pilferer. Old marks should be obliterated, and for safety, more than one label should be affixed to each package. Tag labels are easily torn off or made illegible by rain and dirt. The particulars given on the consignment note should tally with the goods to be carried.

Travelling too Fast under Caution

THE accident at Alloa Junction on January 10, 1951, by which two lives were lost, was due to a driver failing to keep his train under control after having been warned that he was entering a block section under Regulation 25, in consequence of all communication having broken down. As will be seen from Colonel R. J. Walker's report, summarised in this issue, telegraph poles had been brought down by heavy snowfalls and a distant signal was held "off" by one lying across its wire. The warning given by the flagman at the signal was seen by the driver, who blamed the state of the rails for his failure to stop clear of a light engine waiting at the home signal, but there seems little doubt that he was going too fast to do so in any case. The report discusses the question of the best way of conveying warnings to trains in these circumstances and, commenting on the disadvantages of all merely verbal messages, suggests the adoption of a written order-form, similar to those already well-known in "wrong line" working.

High Daily Mileages by L.M.R. Diesels

SINCE leaving their duties in tandem on the "Royal Scot," the L.M.R. diesel-electric locomotives No. 10000 and 10001 have been working over long distances daily as single units on heavy passenger trains. One turn accounts for 703 miles in the 24 hr., and consists of the 10.30 a.m. "Manxman" to Liverpool, returning with the 4.10 p.m.; and the 10.50 p.m. Perth sleeper as far as Crewe, returning at 4 a.m. with the sleeping-car train from Perth and Oban. The other locomotive has been employed on the 5.5 p.m. to Blackpool and the return service at 8 a.m., a round trip of 460½ miles. Loads of up to 15 vehicles may be seen on these workings, and the fact that they are handled by single diesel units is interesting when considered in the light of the original L.M.S.R. statement of 1947 announcing the main-line diesel experiments. This forecast the use of the individual 1,600-h.p. units on suburban and semi-fast passenger trains, and on main-line freight services of medium weight. The capacities revealed by the locomotives in service suggest that quite a small increase in rating would permit regular haulage of London-Glasgow services single-handed, despite having to tackle Shap and Beattock at a late stage of the down journey.

Austrian Locomotive History

OUR contemporary *Eisenbahn* has been publishing a series of articles by Herr F. W. Scholtz and Dr. J. Rihosek, dealing with various designs of main-line locomotive, constructed, or proposed to be, by the Austrian engineer Karl Gölsdorf (1861-1916), who was in the front rank of Continental locomotive designers and whose engines won recognition alike for efficiency and fine appearance. Several interesting sketches are reproduced from Gölsdorf's notebook, serving to emphasise the skill with which he met the widely varying conditions obtaining on the lines of the then extensive Austro-Hungarian railway system. In another series of articles Dr. Rihosek describes many of the remarkable engines used on the 2-ft. 6-in. gauge lines in Bosnia-Herzegovina, abounding in sharp curves and steep gradients. Some were built to the ingenious but complicated designs of the German engineer Klose, for some time active in Swiss railway service. In theory, these solved completely the problem of adaptation to curved track, but proved difficult to maintain. They eventually gave place to locomotives incorporating the Helmholtz truck designs. These informative articles bring out forcibly how very interesting has been the story of locomotive development in Central Europe.

Dutch Electric Locomotives

ELECTRIC motive power on the Netherlands Railways is at an interesting stage. From the inauguration of the first conversion of the Scheveningen lines in 1908, only multiple-unit traction was used for 39 years, and, from the middle 1930s, with smart ultra-modern sets of two or more coaches. Only after the war was locomotive traction sanctioned so that all classes of passenger and freight services on electrified routes might be worked without the retention of steam locomotives. No. 6000 of the former L.N.E.R., completed in 1941 and lying more or less idle because of delay in completing the Manchester-Sheffield electrification, was hired by the Dutch authorities and they gained useful experience with it. But already they had ordered the first batch of their own locomotives; and it is remarkable that in the very first locomotives they ordered the power and speed would not only be considered in the forefront for any country, but the design was distinguished by a better power/weight ratio than that of any other electric locomotive in the world. Considerations of policy have brought some retrenchment in the proposals for very high speed in Holland, and, therefore, succeeding locomotives have been of more modest capacity, yet to most advanced designs, save one batch of American standard locomotives, ordered presumably because of quick delivery.

Prospects for the Locomotive Industry

THE effect on the railway export industry in Great Britain of the increases in steel prices operative from August 13 was discussed briefly in our August 17 issue. The differentials between the British and the American, Belgian, and French prices, it was pointed out, were so great that it was unlikely that increases in the prices of British locomotives and other railway material resulting from the rise in steel prices would have any appreciable effect in overseas markets. German prices, however, are more competitive with British, and it is the German railway industry from which the most serious competition has been experienced for the past year, and is likely to be experienced for some time to come. Against this, German prices are likely to rise in the near future, though it is uncertain how they will compare eventually with British. There are indications that recent wage increases in the heavy industries in Germany are largely responsible for the rise in German prices. In general, there seems to be a rise in locomotive production costs in Europe, which may allow British manufacturers to recapture orders for railways overseas lost to German and other firms.

Early delivery, however, is sometimes as important a factor as price in the case of locomotive and rolling stock orders. Some Continental builders in their anxiety to

obtain orders have quoted delivery dates far in advance of what has proved practicable, though this has not prevented their securing the orders. The same has been true in a few instances of technical constructional difficulties which have been under-rated in the acceptance of orders. British builders have a good record in this respect. British Commonwealth countries continue to be the best markets for British locomotive builders, with their specialist knowledge of requirements born of long association with the various railways, though the Argentine, with an equally long British connection, continues to place orders.

As regards the building by outside firms of locomotives for British Railways, it was estimated some months ago that due to various factors, including improved locomotive user, it was unlikely that the railways would find it necessary to place orders with outside builders for some five years. In view of the very large amount of locomotive building plant taken over on nationalisation from the main-line companies, this estimate is hardly surprising, though in present conditions five years is a long time to look ahead, and strategic and other considerations might cause an alteration of policy.

Winter Train Services, Western and Southern Regions

THE first of the winter timetable books to be published, those of the Western and Southern Regions, show little evidence of the wholesale cancellation of passenger train services that has been forecast for the coming winter, other than the withdrawal of seasonal summer expresses a fortnight earlier than the customary date. Each book, however, contains a "Special Notice" in heavy type to the effect that "The train services and other facilities shown in this book are liable to alteration or cancellation at short notice. Particulars of further cancellations or alterations which will be made after October 28, 1951, will be announced in advance." The winter timetables operate from the unprecedentedly early date of September 10, 1951.

In the Western Region, among the principal trains affected immediately, is the "Inter-City" (9 a.m. Paddington to Birmingham and Wolverhampton; 4.25 p.m. Wolverhampton and 4.50 p.m. Birmingham to Paddington), which will run on Mondays and Fridays only; the 7.10 p.m. Paddington to Birmingham and the 7.50 p.m. Birmingham to Paddington, both of which will run on Fridays and Saturdays only.

Of cross-country express trains affecting both Western and Southern regions, while the "Pines Express" (Liverpool and Manchester to Bournemouth via Birmingham and Bath) and the Birkenhead-Birmingham-Bournemouth restaurant car train continue to run daily, the through service between Birkenhead and Birmingham and the south and south-east coast resorts from Brighton round to Margate (advertised as with restaurant car in the Southern book and without in the Western) runs on Fridays and Saturdays only, also the York-Bournemouth buffet car train via Leicester, Banbury, and Reading West. The York-Leicester-Banbury-Swindon-Swansea through service, which is now deprived of its restaurant car, also runs on Fridays and Saturdays only.

On the other hand, the Southern Region is continuing from the summer certain services which were not given in last winter's timetable. These include the 9 p.m. and 12 midnight non-stop Victoria-Brighton electric trains, with connections to Hove and Worthing, and the midnight train with a connection to Eastbourne and Hastings also. The 1 p.m. Victoria-Brighton, which last winter ran on Saturdays only, for the time being is continued as a daily service, and similarly the 12.25 p.m. from Brighton to Victoria, so that there is no break in the hourly sequence of 60 min. trains from 9 a.m. to midnight every weekday in the down direction, and 10.25 a.m. to 9.25 p.m. up.

Of accelerations there are scarcely any. The 8.55 a.m. from Paddington to West Wales omits all stops between Cardiff and Swansea, and so gains 12 min. to Swansea and 13 min. to Pembroke Dock; a through portion, detached at Cardiff, serves Bridgend, Port Talbot, and

altered the appearance of our power installations compared with those of earlier days, and has made possible—with the advantages particularly valuable in poor weather—the general application of the multiple-aspect principle, in a way that would be very difficult, if not impossible, of attainment with any system of semaphore arms, and certainly would involve a large amount of mechanism, calling for considerable maintenance. The standardising of the junction indicator has still further simplified the matter and resulted in a system of aspects well suited to British operating conditions. At York, again, as in earlier work in the area covered by the North Eastern Region, the position-light type of shunt signal has been adopted. It has been selected as standard by the Railway Executive, but with the alteration, already found at places in the London Midland Region, of the left-hand light in the "on" indication from white to red. This has necessitated the clearing of all shunt signals in a route when a running signal reading over it is cleared, to eliminate the passing of red lights, a departure for the North Eastern Region and involving a rearrangement of the controls in the signal box while the work was in progress. The clearing of shunt signals under similar conditions had, however, been usual in the frame operated power installations in the Southern Region, even where they exhibited no coloured lights at all, but were flood lighted discs bearing a coloured bar.

An interesting train description system, which provides stepping indications of the trains concerned, relative to those indications which appear on the illuminated track diagram; numerous signal post telephones; train starting and other facilities add to the completeness of this fine example of signal engineering. The arrangements of relays, wiring, and cabling in such a layout naturally called for very careful design, followed by highly skilled installation work, and expert testing before being brought into service.

Lötschberg Electric Motive Power

FEW railways with so short a main-line length (Berne to Brigue is no more than 72 miles) evoke so much interest in their electric locomotives as the Bern-Lötschberg-Simplon route of the Berner Alpenbahn Gesellschaft. Twice the company has done notable pioneer work; and the winter, 1 in 35 grade, and sharp curve conditions which characterise the route are almost a byword. The brief operating results given elsewhere in this issue refer to the latest in a line of electric locomotives which has been notable from the start. The 1-E-1 type with which the Lötschberg began operation in pre-1914 days was not only of exceptional power for that time, but was provided with rod drive whose performance, along with that of machines like the contemporary E-type of the Swiss Federal Railways and the 2-B-B-2 of the Pennsylvania, led to prolonged investigation of the vibrations inherent in, and caused by, rod drives from units having even torque throughout 360 deg. Indeed, it was only during the first war period that recognition was gained that under certain conditions of play the stress in the rods on passing through the "45s" might become infinite.

These original Lötschberg 1-E-1 locomotives of 1913 had two large motors totalling 2,500 h.p., a top speed of 46 m.p.h., and a weight per h.p. of 93 lb. Despite their defects they worked nearly all the Spiez-Brigue traffic until 1926, when the first 1-Co-Co-1 locomotives appeared; and some of them even lasted long enough to be rebuilt in 1942 with four motors aggregating 3,000 h.p., but still with the drive on to the two jackshafts and thence by triangular rods on to the centre pair of wheels. The 1-Co-Co-1 locomotives began at 4,500 h.p., a considerable advance, and were continued in small batches until 1942, the one-hour output from 1937 having been increased to 6,000 h.p. without the weight being increased by more than a ton or so to 142 tonnes, or 53 lb. per h.p. All had Secheron individual axle drive with a quill and helical cushioning springs. But in 1944 the company made another contribution to electric locomotive progress—which is now having far-reaching

effects—by putting into traffic the first single-phase express locomotive of the Bo-Bo type, and, moreover, with an entirely new type of bogie and a new disc form of individual axle drive. These 4,000-h.p. locomotives, with a weight of 45 lb. per h.p., paved the way for all the current double-bogie high-speed a.c. and d.c. electric locomotives in Switzerland, France, and elsewhere in which high power has been obtained on most moderate weight, and in which bogies of the former conventional type have been eliminated with remarkable improvement in the riding and in the reduction of lateral forces.

Freight Movement on British Railways

(By a Correspondent)

DURING the four-week period to July 15 a small increase of 47,000 tons in freight traffic originating on British Railways was accompanied by a disproportionate increase in net ton-miles worked. The average haul of 75.98 miles for all classes of traffic was the longest for any period recorded in *Transport Statistics*. The additional tonnage and ton-mileage were distributed unevenly among the Regions. The London Midland, Eastern, and Scottish Regions originated more traffic and worked more ton-miles, while traffic was lighter by 71,000 tons (1.9 per cent.) in the Western Region and by no less than 271,000 tons (5.3 per cent.) in the North Eastern. Ton-miles were affected little in either Region, the North Eastern curiously having 11.5 per cent. more merchandise ton-miles.

The brunt of the expanding ton-mileage fell on the Eastern Region with an additional 14 million (4.4 per cent.) and on Scotland with an extra 6 million (2.5 per cent.). The London Midland share was 2 million ton-miles, an increase of only 0.3 per cent., so that it had a fine opportunity to enliven its freight train working. The table of operating results below shows that the long summer days were not used to advantage.

PERCENTAGE VARIATIONS BETWEEN 1951 AND 1950

	Region		
	London Midland	Western	Eastern
Freight train-miles	-3.4	+2.9	+1.0
Wagon-miles	-2.7	+3.7	+1.4
Train engine hours in traffic	-1.6	+5.6	-0.3
Net ton-miles per train engine-hour	+1.9	-5.3	+3.8
Wagon-miles per train engine-hour	-1.2	-1.7	+0.7
Freight train speed	-1.8	-2.6	+1.3

In spite of the regrettable decline from last year's performance, the Western Region moved more ton-miles and wagon-miles in a train engine-hour than the London Midland Region. With the same train speed of 8.90 m.p.h., the Western and Eastern Region trains moved nearly 1½ m.p.h. faster than those of the London Midland, whose low average of 7.44 m.p.h. spoiled the showing for British Railways as a whole. Though the Scottish Region had to cope with a largely increased volume of traffic, its operating staff raised the freight train speed to 10.89 m.p.h. The North Eastern was not far behind with a speed of 10.83 m.p.h.

It seems plain that in some measure the London Midland Region has lost mobility through some of its trains being too unwieldy for existing line and yard facilities. The reduction in freight train-miles in the July period lifted the average train load by nearly 6½ tons to 182 tons. That was about 21 tons above the Western Region's load and 15 tons heavier than that of the Eastern Region. Movement might be improved by transferring traffic from L.M.R. congested lines to alternative routes which are working freely, even if additional mileage has to be run. In the meantime, it is a pity that the Railway Executive does not explain what steps are being taken to deal with a situation that is without precedent in the history of our railways.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Inter-Regional Transfers of Officers

August 28

SIR,—I suggest that by his pseudonym "Southern Man" betrays himself as one of those individuals who is consumed with a nostalgic longing for the good old days, and whose prejudices so distort his vision that he cannot recognise facts when he sees them.

His description of the Railway Executive as "an L.M.S.R. re-union" is as ludicrous as his suggestion that the London Midland Region men are filling "most of the better vacancies."

May I remind him of a few of the better vacancies all filled by former Southern Railway men:—

First Chairman of the Railway Executive
Second Chairman of the Railway Executive
Chief Regional Officer, North Eastern Region
Commercial Superintendent, London Midland Region
Stores Superintendent, London Midland Region
Assistant Operating Superintendent, London Midland Region
Assistant Civil Engineer, London Midland Region
Regional Staff Officer, Scottish Region

I challenge "Southern Man" to produce a comparable list of the "better vacancies" on other Regions filled by former L.M.S.R. men.

Yours faithfully,
BRITISH RAILWAYS MAN

Staff Shortage on British Railways

August 26

SIR,—Many of your correspondents, writing under such headings as "Railway Efficiency," "Management of British Railways," and so on, have touched on the question of staff shortage as if it were a minor aspect of the railways' present situation.

Surely it is the most vital problem that the railways have to face today and one which must be tackled immediately by the Railway Executive with every means at its disposal. The railways are short of several thousand men, many of these being required in skilled jobs for which experience and training are essential. A mass importation of labour, even if possible, would not immediately improve the situation, nor would a satisfactory answer to the recent wage demands.

The majority of experienced railwaymen, many of them after twenty or thirty years service, are now apathetic; they feel that nothing is being done to arrest the rapid deterioration. Yet they would welcome a revival; they hang on to their jobs in the hope that someone in authority will give them a lead, that the industry will yet be revitalised, and that they will again be able to take an active interest in the running of a service of which they were once proud.

The lead should be given before it is too late, either by the British Transport Commission or the Railway Executive, by setting up a special committee to implement a five-point plan as detailed below. The five points would have to be put into operation simultaneously to achieve success and, although it is essentially a long-term policy, the initial stages should be completed in the shortest possible time.

Improve pay and conditions: Enhanced payments for night and Sunday duty. Satisfy the railwayman on shift duties that he is getting more remuneration than his neighbour who works normal hours and a five-day week. Widen the small differentials in wages and salaries between the grades to encourage a desire for promotion. Form a superannuation scheme for the wages grades.

Concentrate on recruitment: Publicise the advantages of railway employment through the press, posters, and so on. Arrange lectures through the education authorities to boys of school-leaving age, encourage them to take up railway work as a career, not just as a job.

Introduce comprehensive training schemes: Include new recruits and established staff. All recruits should receive good training before taking charge, and every man taking a promotion should attend a course or be otherwise properly trained for his new duties. Even the suburban station porter should not be overlooked; often he is the sole representative of British Railways in the locality when the stationmaster is off duty, and frequently he knows less about the train services and ticket facilities than the average regular passenger.

Re-introduce pre-war discipline: To keep the staff on its toes and prevent abuse of the enhanced payment arrangement by men who work rest days and weekends, but are absent on days when they would receive ordinary payment. Many experienced railwaymen would welcome this, as they abhor the present "don't care" attitude of the younger members of the staff which reacts and reflects on them.

Improve passenger services and increase cheap fare facilities. Give the railwayman something to sell so that he can confidently encourage people to travel.

Yours faithfully,

J. L. BROADHURST

14, Bordon Road, Cheadle Heath, Stockport

[All the points made by Mr. Broadhurst are already receiving the attention of British Railways and most of them are already being put into practice, especially those relating to recruitment and training.—Ed., R.G.]

Some Railway Shortcomings

August 29

SIR,—A delightful letter, or should I say, epistle, from your correspondent "Omen," in your August 17 issue, appears to have some reference to an earlier letter from the prophet "Nemo."

Possibly you, Sir, may have understood it, as you elected to print it. May a lesser mortal, who is more familiar with the General Railway Classification than the Old Testament—with Charles the First and Rupert Brooke thrown in—appeal to "Omen" to be a sport and tell us what it is all about? Or must we wait for a clue until the prophet Elliot has descended bearing against his bosom the stone tablets of the Minutes of the Meeting on the Marylebone Mount? Do let us into the mystery, dear "Omen."

Meanwhile I am feverishly reading up the history of Jehu, who, he may recall, drove furiously—not on a re-boilered "Scot."

Yours faithfully,

EMNO

August 28

SIR,—I read with interest and agreement Mr. John Elliot's letter on railway shortcomings in your July 27 issue, and articles in the *Railway Review* by Mr. J. Figgins with interest and agreement, but when are we going to get leaders with enough courage to tell staff or members the three main or first causes of our inefficient public service?

Any conscientious and loyal railwayman engaged on the operating side of railway service would immediately voice those causes—lack of discipline, inefficient control system, and restrictive practices.

There is no panacea for the railway aches and pains of today; only time and faith can cure our sick industry. But if the leaders of the unions would have the courage to stop pandering to their members and tell them that fair and just discipline must be enforced, and that if necessary they will back the management in enforcing it, a step forward will have been taken.

The management must bear the responsibility of the deterioration of discipline in the industry. In large motive

power depots, such as Willesden, the District Locomotive Superintendent and shed and shift foremen are almost powerless. Many of the staff come and go almost as they like. Meals are taken by men not entitled to them, and this has been operating for so long and consistently that it has become an unwritten agreement. Firedroppers go home in about three or four hours having made the equivalent of twelve hours pay; engines stand waiting disposal; and trains have late starts because the Traffic Department awaits power. Local agreement, which the staff will not modify, entitles footplate men to refuse to dispose of the engines awaiting servicing.

There was a time when the management would have been sufficiently alert to foresee such a predicament before agreements were made. I appreciate the staff shortage but it is never Army or Navy policy to relax discipline when recruits are needed; the authorities realise that without discipline the fighting machine is useless.

The Control offices are an excellent example of inefficiency. With perhaps a few exceptions the members of the staff employed are either without practical operating knowledge or, in being medically unfit for more manual duty, have secured Class 5 positions and worked up in the control office. It is only by chance if such men are suited or capable of doing a job that by right and necessity must be filled by a man with considerable practical operating knowledge of the district and young enough to commence from the zero position in the office.

Why not have the control office vacancies placed on the wages staff vacancy lists? The majority of posts in the control office can be suitably filled only by men from the wages grades who have been trained and tested for operating ability.

In credit to the management, it has made efforts to break restrictive practices. It is the unions which must courageously tell their members that these practices are virtually endangering their bread and butter and making a laughing stock of the industry which, especially for footplate men, is their life-long career.

There are many prejudices to overcome before management and staff are willing to give and take freely, but surely the Railway Executive and trade union leaders must realise that discipline and abolition of restrictive practices are the corner-stone to the success and efficiency of a great public service. As for Control office inefficiency, the right man for the right job is only common sense.

Yours faithfully,

A. E. GRIGG

85, Larch Grove, Bletchley

Railway Efficiency

August 28

SIR,—In his latest flight into the realm of railway passenger statistics, your correspondent Mr. E. R. B. Roberts has "crashed" even more badly than usual. He quotes figures of 72,000 and 68,354 taken from "Railways of the World" and "Whitaker's Almanack" respectively as being the number of coaches for 1913. Not possessing copies of the publications he mentions, I am unable to say what these figures really represent; they may include all "coaching" vehicles (as distinct from passenger coaches) or they may be for the British Isles (including Ireland), but they are not the correct figures for passenger coaches of the railways now owned by the B.T.C., the official figure for which is 51,174, as mentioned in my previous letter, so that the reduction, 1949 compared with 1913, is 6,000—not 25,000 as stated by Mr. Roberts.

Mr. Roberts states that I am oblivious to the fact that "they (the railways) are already losing at the rate of £53,000,000 a year compared with 1947." I most certainly am—the actual figures for passenger traffic of all descriptions, according to the B.T.C. annual reports for 1948 and 1950, respectively, being: 1947, £116,996,000; 1950, £106,340,000; decrease, £10,656,000—not £53,000,000. His next mis-statement is to the effect that I estimate road transport has won £100,000,000 worth of competitive traffic from the railways; the figure is, of course, absurd, and I can find no mention of it in previous letters.

The comparison Mr. Roberts makes to show "how serious the loss in ordinary train traffic has been" is simply laughable, and one wonders whether in comparing figures for the month of February (the lightest month of the year for passenger traffic) with those for August—not September as shown by him—the heaviest month) he is really serious or if he is just pulling our legs! If the former, then his ignorance of the subject is even more colossal than I imagined. Incidentally, the figures shown for numbers of passengers and receipts are for different periods in each case.

Mr. Roberts's theories on passenger fares have been discredited so often that further comment is really superfluous, but if his latest proposal—to reduce ordinary fares to ½d. per mile (with no reduced charges for season tickets, workmen, or excursions)—were adopted the passenger miles would have to be increased from the 1950 level of 20,177 millions to 50,846 millions even to maintain the 1950 passenger revenue. When it is remembered that the 1913 figure for passenger miles was only 18,500 millions, even Mr. Roberts should be convinced of the absurdity of his suggestion.

The last paragraph of Mr. Roberts's letter is an insult to the intelligence of your readers, whilst the second sentence of that paragraph is also an insult to the former Chairman of the Railway Executive.

Yours faithfully,

J. H. LAUNDY

Rustington, Sussex

Integration of Transport

September 1

SIR,—The assertion by your correspondent in your August 31 issue that "in such cases it is necessary to consider whether the withdrawal of the road services would be tolerated to see that it is the rail service which must give way," when referring to country routes, is manifestly unfair. During the war in fact many such road services were withdrawn, not to mention examples like the Green Line coach services. They were reinstated not because of any feelings for the people, but because their operators could divert money from the railway pocket into their own.

The day has passed when the railway monopoly could provide two or three trains a day on a country route and fill them, but the lack of suitable vehicles (for example, railcars), or the initiative to provide them, has left the railways unready to meet road competition by its best weapon, the provision of a better service. In New Zealand the old Wairarapa Express, once a day in each direction, could not meet the competition of buses, but the provision of railcars at more reasonably frequent intervals has transformed the situation.

Referring to competition by coaches and buses on routes parallel to a trunk railway, your correspondent says the B.T.C. must either continue to lose traffic, or run its own road services on similar terms. There is a third possibility, the withdrawal of these competitive road services which make havoc of any plans for integration. If not possible for the B.T.C., it is at least possible for the Government to protect the people's interests, and prohibit the carriage of passengers on road vehicles on such absurd routes as that between London and Glasgow.

Increased road usage by diversion of goods or passenger traffic from rail, will not only call for an increased expenditure on new road construction and adaptation, but also for increased maintenance, and all this must be borne by the unfortunate ratepayer and taxpayer.

Yours faithfully,

R. G. R. CALVERT

c/o Westminster Bank, Broadway, Bexleyheath

WESTERN REGION BRANCH LINES TO CLOSE.—It is announced by the Western Region of British Railways that, as from September 10, passenger train services between Little Somerford and Malmesbury, Wiltshire, and between Plymouth Friary Station and Turnchapel, will be permanently withdrawn.

THE SCRAP HEAP

A South Eastern Relic

A correspondent informs us that lunch in a dining room at Victoria Station resulted recently in the discovery of a relic to delight the heart of the railway antiquarian. When coffee was served the milk jug—awkward to manage because it had been made without a handle—was seen to have an inscription in red, "South Eastern Railway," and to bear the arms of that company. Now, as the former S.E.R. ceased its independent existence with the formation of the South Eastern & Chatham Managing Committee in 1899, this specimen of china may be at least 50 years old. Most surprising of all is how it has managed to survive 50 years of washing-up unless it has formed part of some secret store of crockery and remained in hiding until the present day.

Vanished Line

A correspondent writes that a railway 60 miles long that has completely disappeared in Italian Somaliland gave rise to discussion and perplexity at a recent meeting of the Trusteeship Council of the United Nations. In the course of a survey of general conditions in the country delegates were shocked to learn that the railway was no longer there.

All the installations were gone and the rolling stock appeared no longer to be in existence. The responsibility of administration in this territory rests with the Italians, whose representative supplied the answer to the question. He stated that only in the war the railway became non-existent, and added sagely that in time of war a great many things disappear and others are destroyed—perhaps the perfect answer. Before the war there was a railway in Italian

Somaliland 60 miles long with all its installation and rolling stock. After the war there was no trace of any of these things, but if any of the rolling stock turns up on other railways there may be further questions to be answered.

Refurbished Brunel

On the Victoria Embankment workmen have been stripping away scaffolding from the Isambard Kingdom Brunel memorial. New Portland stone has been carved to replace the old, and the whole is now in bright contrast to somewhat dingy surroundings. Brunel is one of London's defunct and forgotten benefactors. The memorial itself announces that he was a civil engineer, but says nothing of his activities.

Brunel assisted in the construction of the Thames Tunnel, and was responsible for the broad gauge on the Great Western Railway. He also planned the old Hungerford Bridge at Charing Cross and the Clifton Suspension Bridge... He designed the first steamship to make regular voyages across the Atlantic, many docks, and the water towers of the Crystal Palace. He died just under a century ago.—*From "The Scotsman."*

G.N.R.(I) Sand Designs

A sand design competition arranged by Bangor (County Down) Borough Council for the G.N.R.(I.) took place on August 16. Over 50 children were issued with G.N.R.(I.) leaflets and their work was of a high standard.

Brightly coloured sea-shells, and coloured bottle tops, together with seaweed were much in evidence. String and pegs were used to obtain geometrical patterns. Marks were awarded for slogans, originality, neatness, and ex-

cution of design, and allowance was made for the age of competitors.

First prize was won by a design based on a shamrock in a circle with the slogan "For Distances Near and Far, Travel by G.N.R." A design shaped like the front of a locomotive with the words "Do Not Travel by Bus or Car, when it's Cheaper by G.N.R." was awarded second prize.

The Early Train

A mushroom picker ploughed early through the wet grass near Burnt Walls Farm, Daventry, and before him gleaming white mushrooms clustered in a corner near a rail track. Then, from a slow moving train, the fireman nipped down, lopped off the heads of all mushrooms in sight, and climbed back.—*From the "Daily Express."*

Determination

A determined Englishwoman recently gave the Italian railways something to talk about. As the Trieste-Milan express neared the end of its night run the passenger put her baggage in the corridor. When the train lurched on a curve, however, the door flew open, and the luggage vanished in the dark. She pulled the cord and made the guard come to help her search the track.

The full train grew restive, and so did the guard, but not the Englishwoman. She refused an offer made by the guard to continue her journey and let railwaymen find the luggage in daylight and bring it on.

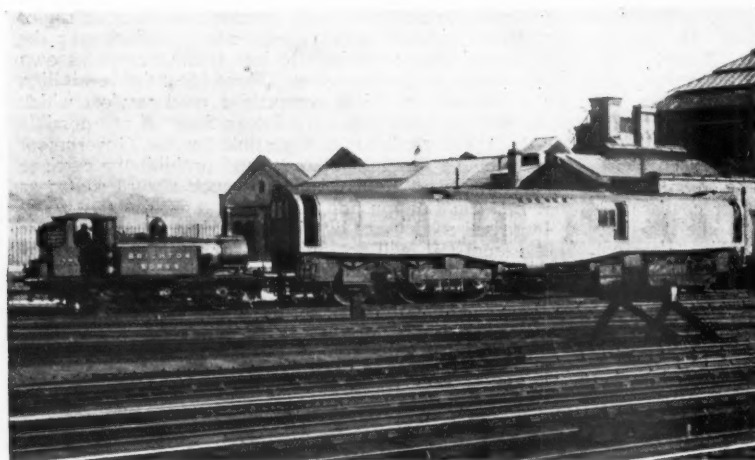
When the express at last continued its journey this passenger stayed behind in the dark and hunted for her lost luggage alone. And she found it, after which she simply waited until another train came along, stopped it and demanded—and got—a lift into Milan hard behind the express—*From the "News Chronicle."*

Letter to the Young Nephews

Darling diesels, I write this in some haste,
As I'm about to leave, and want to catch the post.
Must you be so blatant? I mean you seem
To think that you're the first ever to coast
Into Town on time. You're not, you know.
My sisters and I have been doing it for years
And years. Of course we've found no stylish
Hills like Shap or Beattock to climb, but there's
More suburban congestion south of the river,
And really the things we have to put up with sometimes (at Battersea)
When the're only ninety seconds to go, But we're in on time always—at London or the sea.

Yours,
BRIGHTON BELLE

Long-Lived and Short-Lived



Brighton Works locomotive "Terrier," No. 3775, hauling out "Leader" class No. 36001 (now broken up) with part of its gear casing removed

(Photo)

[J. L. Smith]

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW ZEALAND

Rimutaka Tunnel Progress

The American tunnellers working on the Rimutaka Tunnel fired their first blast on the tunnel face at the western end early in August. After five weeks preliminary work, their real task of driving the five-mile tunnel that will link Wellington with the plains of the Wairarapa has begun.

Since their arrival the Americans have laid a network of lines on the approaches to the tunnel, erected new buildings, and run power, pressure and air lines into the shaft; they are now strengthening the braces at the face of the tunnel. At present two shifts are working 16 hours a day. A third shift is due to start shortly and the work will then go throughout the 24 hours.

VICTORIA

New Coach for Royal Tour

The new vice-regal coach, the fifth of the "State" class to be built in the Department's main workshops at Newport, will be used by the King and Queen and Princess Margaret on their tour of the provincial centres of the State next year.

The coach comprises a kitchen, saloon

with buffet, two state-rooms, each with a bathroom, two staff rooms, and a shower room. It is air-conditioned and has fluorescent lighting, which gives a subdued and pleasant effect to the light pastel ceilings. The royal coat-of-arms, which appears on each side of the coach, is a transfer imported from Canada, where similar transfers were used on the last royal tour of that Dominion.

The slow-combustion stove in the kitchen provides hot water for 60 gal. storage tanks. It also supplies hot water for bathrooms, shower, hot press, and kitchen sinks. An electric refrigerator of 21 cu. ft. capacity and a filter for drinking water are fitted in the kitchen. Provision has been made for an electric toaster, ironing board, and serving table.

The combined saloon and buffet compartment has a mushroom wall-to-wall carpet and rose-coloured velvet curtains with gold tassels. In this compartment, panelled in Queensland silkwood, there are two easy chairs, four green upholstered chairs, dropside table and built-in buffet. The two state-rooms, panelled in silver ash, each contain a single bed, with overhead reading lamp, and folding trinket shelf, dressing table and chair, and built-in wardrobes. Portable showers, including a special

shampoo shower, which is fitted above each porcelain pedestal washbasin, are a feature of the cream-coloured bathrooms, off the two state-rooms.

The coach was designed by Victorian Railway engineers, working under the supervision of Mr. A. C. Ahlston, Chief Mechanical Engineer.

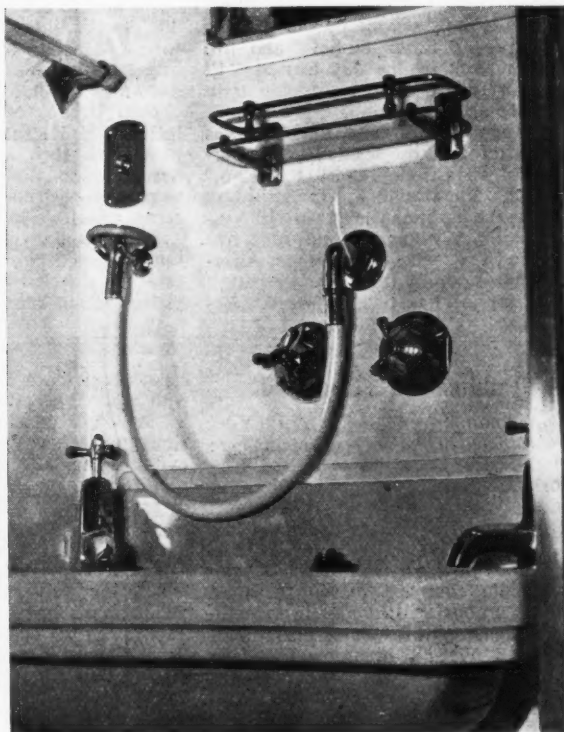
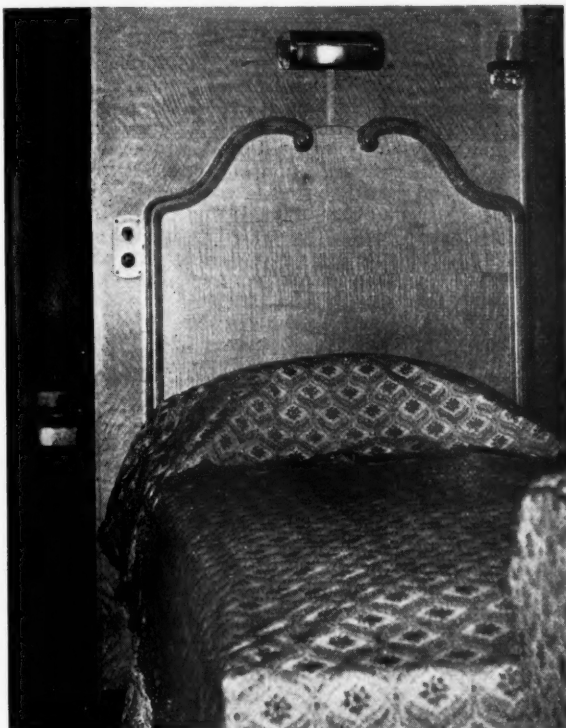
ARGENTINA

Heavy Traffic for Election Rally

A great rally was recently held in Buenos Aires to request President Perón to accept candidature for a second term of office. It was attended by some two million persons from all parts of the country, and it is estimated that a quarter of these travelled by train with free tickets supplied by the C.G.T. (General Workers' Federation). More than fifty special trains were run and the timetable trains were used almost exclusively by provincial visitors to the meeting.

Winter Services

The winter timetables have only recently been put into force. Various reasons made their earlier introduction impossible; in the meantime, the summer timetables had been maintained, though holiday expresses to sea-



Interior of the new Victorian Railways coach for the Royal tour: (left), part of the second state-room; (right), handbasin fitted with special shampoo spray

side and hill resorts had been withdrawn.

The principal services at present in force are as follow:—

General San Martín Railway.—The international service to Chile is maintained by the "El Libertador" express twice weekly. Mendoza and San Juan are also served by the day express "El Cuyano" daily, and "El Sanjuanino," weekly, and by the sleeping car train "El Zonda" twice weekly. To the Córdoba Hills, there is a night train "Sierras Grandes" also twice weekly.

General Belgrano Railway.—The international service to Bolivia, Perú and Northern Chile is run by "El Panamericano" once a week. Salta and Jujuy are also served by "El Norteño" three times weekly. Tucumán has four trains a week via Santa Fe and a daily service via Córdoba. To Resistencia there is a daily and also a tri-weekly service. Catamarca has six trains per week.

General Bartolomé Mitre Railway.—The services to Tucumán and Santiago del Estero have been reorganised and increased. The air-conditioned "El Tucumano" and the sleeping car express "Estrella del Norte" still run twice weekly. To Santiago del Estero, there is a new day express "El Santiagueño" with a relief train under the same name, but running at night with sleeping cars and second class coaches, both once weekly. A stopping train runs five times a week to both cities. Connections in Tucumán with the General Belgrano Railway to Salta and Jujuy have been abolished. To Córdoba there is a daily service by the sleeping car express "Rayo de Sol" and five times a week by the day express "El Serrano," apart from a stopping train from Rosario to Córdoba every day.

Between Rosario and Buenos Aires there are four expresses daily, "El Porteño," "El Criollo," "El Rosarino," and "El Santafesino." On Saturdays there is the additional express "El Vespertino." A stopping train runs five times a week and the Buenos Aires-Tucumán stopping train offers an additional service five times a week. Be-

tween Rosario and Bahía Blanca (General Roca Railway) there are two sleeping car trains per week. Santa Fe has a night train "El Santafesino" six times a week, and a daily diesel coach connection in Rosario with the express "El Rosarino," as also a daily stopping train from the latter city, connecting with "El Serrano."

General Roca Railway.—To Mar del Plata, apart from a daily stopping train and two weekend expresses, there is a diesel express making two round trips a week, taking 5½ hr. There is also a fast diesel service to Necochea at weekends; the ordinary service is effected by three daily and three nightly stopping trains a week. Bahía Blanca has four day trains and a daily sleeping car train. A stopping train six times a week and an express twice weekly run to Zapala; Bariloche is served by one express and three stopping trains a week.

General Urquiza Railway.—The international express "El Guaraní" to Paraguay continues to run once weekly. The Corrientes service is maintained by the "El Gran Capitán" express three times weekly, and the Concordia service by "El Entrerriano" also three times weekly.

Domingo Faustino Sarmiento Railway.—This line has maintained its present timetable with minor alterations.

ITALY

Genoa Underground Railway

Further to the reference in our July 20 issue, it is learned that the scheme for a Genoa underground railway originated with a group in Rome, known as "SCUI" (Sviluppo Comunicazioni Urbane ed Interurbane) which includes important industrial concerns of Genoa, such as the Ansaldo engineering works, the Ansaldo-San Giorgio shipyards, the Piaggio shipyards, and aeronautical works.

The first line proposed is 5½ miles long, between Piazza Tommaseo, in the centre of the city, and Sestri, to be completed within thirty months from the

start. The line, all underground, would be double-track, standard-gauge, and have maximum gradients of 1 in 33 with minimum curves of 7 ch. There would be 15 stations, each station 394 ft. long to accommodate six-car trains. Each car would accommodate 220 passengers (two thirds standing). Third-rail 1,500 V. d.c. working would be adopted.

To the cost, put at lire 13,000 million (approximately £7,332,200) must be added lire 3,000 million (about £1,692,000) for 45 motor coaches. The whole work would be carried out by Genoese firms and Genoese labour. The municipality would contribute.

FRANCE

Finances

In the National Assembly on August 24 it was stated that the government intended to reintroduce a bill for transport reorganisation and balancing of S.N.C.F. budget. It was also stated that a further grant of fr. 11,700 million would shortly be required for the S.N.C.F. in addition to the previous subsidy of fr. 75,000 million. The deficit to be covered was fr. 86,700 million (approximately £86,700,000).

M. Maurice Lemaire, deputy for the Vosges department and former Director-General of the S.N.C.F., has introduced a bill in the National Assembly for the reorganisation of the S.N.C.F. and transport co-ordination. It proposes decentralisation to bring responsible railway officials into direct contact with users and local communities, and also to put railway establishments under a management of an industrial and commercial type. It further recommends that railway equipment expenditure should be directed primarily to acquiring lightweight stock and railroad material for door-to-door deliveries. Another proposal is for sliding tariffs linked to economic indices with a value about 19 times those of 1938. M. Lemaire considers that the proposed measures would set the S.N.C.F. finances on a sound basis within a period of four years.

Publications Received

Dampflokomotiven der New York Centralbahn für hohe Geschwindigkeit: (High-Speed Locomotives of the New York Central), 1951. By Dipl.-Ing. Adolf Wolff. Bielefeld (Germany): Georg Siemens Verlagsbuchhandlung. 8½ in. × 5½ in. 92 pp. Price not stated.—This book obviously has been a delightful labour compiled by one with an intense professional interest in locomotive design, and it is focused on some of the most effective high-power express locomotives ever built. We ourselves have had such interest in the 4-6-4, 4-8-2, and 4-8-4 engines of the N.Y.C. for the many years since we heard that the first-named type was regularly worked at 65 per cent. cut-off at 65 m.p.h. Performance and design of the

classes built since 1931 have been dealt with at some length in the United States by Mr. P. W. Kiefer on various occasions; but Mr. Wolff has compressed an extraordinary selection of data, with 60 performance curves and detail drawings of great clarity, in less than a hundred pages of handy size. Even those with the scantiest knowledge of the German language will gain much from the tables, the valve diagrams, balancing calculations, boiler performance, and tractive effort curves, and from the clear dimensioned drawings of roller-bearing big-ends, pistons, and so on.

Unionmelt Automatic Welding.—A technical brochure (No. T.C. 832) has been issued by the Quasi-Arc Co. Ltd. which describes and illustrates the salient features of the Unionmelt automatic

welding process. Included are installation details, together with the capacities of the four standard models available for the welding of mild steel, low-alloy high-tensile steels, and class 1 pressure vessels. Also given are a number of welding layouts for cylindrical and other types of welding.

Nickel Alloys.—The latest edition (No. 15) of a publication on nickel alloys issued by Henry Wiggin & Co. Ltd. contains articles on forming by spinning and on high nickel alloy spring materials. Corrosion problems involved in using potash dichromate and phosphorus oxychloride are also described. Other interesting articles deal with the use of nickel alloys in thermal deicing, industrial drying, gas safety devices, and vapour spray cleaning.

Electric Locomotive Performance in Switzerland

*Working results and maintenance costs
on the Berne-Lötschberg-Simplon Railway*

IN November, 1944, and March, 1945, the Berne-Lötschberg-Simplon Railway put into traffic what were the first two modern high-power Bo-Bo express electric locomotives to run in Switzerland, or, for that matter, on any single-phase railway. Two more were delivered in April, 1948, and August, 1948, the numbers being 251-254. Another two are being delivered this year.

These units were intended to improve on, and eventually replace, the 1-Co-Co-1 locomotives of 6,000 h.p. maximum built between 1926 and 1942, which themselves replaced the old rod-drive 1-E-1 locomotives dating from 1912. They run through from Berne to Brig, and over the mountain section from Spiez to Brig, with grades as steep as 1 in 37, they now work all the passenger traffic and some of the freight. This line is laid with 87-lb. rails in 39½ ft. and 79 ft. lengths with 17 to 21 wooden sleepers per 39½ ft. rail, and this takes a 20-tonne axleload. Built by the Swiss Locomotive Company as to the mechanical portion and by Brown Boveri as to electrical equipment, these 4,000-h.p. 80-tonne locomotives were described fully in our issue of August 16, 1946, and further particulars were given in our issue of May 21, 1948.

First heavy repairs were given to the two original locomotives in the Spring of 1949 after they had covered a total distance of slightly over 1,000,000 km.

(about 625,000 miles), equal to just over 75,000 miles a year per locomotive.

According to Mr. F. Gerber, Mechanical Engineer of the B.L.S. system, writing in a recent issue of the *Schweizerische Bauzeitung*, these locomotives retained their excellent running qualities throughout that mileage, and combined mileage attained 303,000 before the first skimming-up of the tyres became necessary through hollow treads and flange wear. Flange lubrication had been applied on the constant curves of 300 metres (328 yd.) radius only during the cold season, and permissible speed for these locomotives round those curves had been increased to 75 km.p.h. (46½ m.p.h.)

Improvements

Because of the large proportion of the total traffic between Spiez and Brig worked by these locomotives since the summer of 1948, some evidence of the influence of Bo-Bo locomotives on rail conditions has become available. Wear on the inside face of the outer rails on the numerous curves has been decreased; and the general deterioration of the permanent way by the running loads and vertical stresses has also been reduced; and this effect has been observed despite the increased number of trains, quicker schedules, and higher speeds round curves.

Wear has been almost negligible on

the cylindrical axlebox guides which transmit all the tractive and braking forces, as well as the lateral reactions from the track. Moreover, consumption of lubricants, including that needed for both electrical and mechanical parts, has averaged 1.3 gr. per km., whereas in the 6,000 h.p. 1-Co-Co-1 locomotives the average over many years has been 13.8 gr. per km., and for the old rod-drive 1-E-1 type 27.5 gr. per km.

Despite the shift in axleload which occurs with Bo-Bo designs, and which in this particular type reaches a 10 per cent. unloading of the front axle at starting, the pneumatic pressure-equalising device fitted proved to be unnecessary in practice, and has been omitted from later locomotives. On the other hand, the anti-slip brake did prove an advantage, and has replaced the sanders to a large extent, the average sand consumption being 25 lb. per 1,000 miles.

Maintenance costs over the first 625,000 miles of the two original Bo-Bo locomotives averaged 25 centimes Swiss per km., but this included the expenses of the early tests, investigations, and adjustments; and it is considered that for the subsequent locomotives, without such costs and with the present settled maintenance programme, the maintenance costs, including those of the heavy repairs, will lie somewhere between 10 and 15 centimes Swiss per km. (3.3d. to 5d. a mile).

Train Timing on the Gotthard Main Line

(By a Correspondent)

A RECENT journey over the Gotthard main line of the Swiss Federal Railways was an interesting experience. For several years a morning express from Basle to Milan, and the corresponding northbound express in the evening, have been booked to run non-stop over the 105.6 miles between Lucerne and Bellinzona at an average speed of 43.4 m.p.h. The run, allowed 2 hr. 26 min. in each direction, includes the climbs from both directions to the Gotthard Tunnel, up a difference in level of 2,339 ft. on the southbound run, and of no less than 3,028 ft. on the northbound. The ruling gradient is 1 in 38½.

On the occasion of a southbound journey on the 8.11 a.m. from Lucerne, the load was nine bogies of heavy International stock, including sleeping cars and a restaurant car; the train weighed 397 tons empty, and 420 tons with passengers and luggage. Motive power was provided by locomotive No. 11852, Series Ae 8/14, a multiple-unit assembly of the 1-Bo-1-Bo-1 + 1-Bo-1-Bo-1 type, which, with its rated 11,400 h.p., is claimed to be the most

powerful locomotive in the world. From Lucerne a speed restriction obtains over the single track to Immensee, 11.8 miles, and over this stretch speed was not allowed to exceed 43.46 m.p.h., so that the first 17.3 miles to Arth-Goldau took 24 min. 42 sec. The fairly level section on to Brunnen and round the margin of the lake on to Flüelen was taken at a higher speed, and occupied 17 min. 35 sec., despite two 45 m.p.h. speed restrictions.

At the far-end of the yard at Erstfeld, which was passed at 40 m.p.h., the 18-mile climb to Göschenen begins. On the first length of 1 in 38½ gradient, speed fell to 36 m.p.h., but there was a rapid recovery to 47½ on a km. of level, approaching Amsteg, after which a steady rate of 37½ m.p.h. was maintained up 1 in 38½ and 1 in 39, and also on the 1 in 43½ through the three spiral tunnels near Wassen. The 3 miles from Erstfeld to Amsteg took 4 min. 39 sec., the 4.9 miles thence to Gurtellen 7 min. 48 sec., the 5.3 miles on to Wassen 8 min. 7 sec., and the 4.7 miles from Wassen to Göschenen 7 in. 40 sec.

Through the Gotthard Tunnel speed

was about 60 m.p.h., and, including speed restrictions at Göschenen and on exit at Airolo, the 9.8 miles between the two stations took 11 min. 23 sec. Despite the initially speed-restricted 12 miles, the numerous service slacks, and the 2,339 ft. climb, No. 11852 had run the 65.3 miles from Lucerne to this point in 88 min. at 44.5 m.p.h. Down the long and winding descent of the Ticino Valley the train was restrained to an average of 43 m.p.h., and was held at this speed by the regenerative braking on the locomotive, and without any use of the air brakes.

There was a slowing to walking pace for bridge repairs on the Giornico spirals, and the 28.3 miles from Airolo to Biasca thus occupied 41 min. 5 sec. On the fairly straight and level length from Biasca, speed rose to 60 m.p.h. at Claro, 7.3 miles from Biasca to Claro taking 7 min. 38 sec., but adverse signals caused a slack to 15 m.p.h. at Castione. Nevertheless, Bellinzona was reached 2 min. early, the 105.6 miles having taken 144 min. 2 sec. start to stop, a net average of 45 m.p.h. over these formidable gradients.

Electric Locomotives of the Netherlands Railways

Characteristics of several new types recently delivered and under construction

By J. P. Koster, Chief Engineer, Motive Power & Rolling Stock Department



One of the six double-bogie locomotives hired from the S.N.C.F.; top speed 62 m.p.h. These have now been returned to France

ALTHOUGH there have been electrified sections of the Netherlands Railways since 1908, only multiple-unit traction was used until 1947, when, in view of the proposals to use electric locomotives eventually in fairly large numbers, the Bo-Bo locomotive No. 6000 of the former L.N.E.R. was borrowed for tests and also to provide a useful traction unit in a devastated country short of motive power. This locomotive is still running on the Netherlands Railways, and to the end of March, 1951, had covered 282,130 miles in Holland.

To provide top-class power for the electrified main lines then being reconditioned, ten powerful 1A-Bo-A1 locomotives of the Oerlikon type, and of 4,480 h.p. on the one-hour rating, were ordered. Three complete locomotives were supplied by the Maschinenfabrik

Oerlikon, Zurich, and the Swiss Locomotive & Machine Works, Winterthur. For the other seven, which were erected in Holland, Oerlikon supplied the electrical apparatus and auxiliary machines, but the traction motors were built by two Dutch firms under licence. The mechanical parts for the seven were supplied by S.L.M. as the general contractor working in co-operation with a Dutch builder. These locomotives were described in *The Railway Gazette* for August 13, 1948.

All these locomotives are shedded at Amsterdam and are used for fast passenger and heavy freight trains. The passenger trains weigh from 400 to 600 tons and have top schedule speeds of about 60 m.p.h., though accelerations have been made in the present summer timetables. Top scheduled speed for freight trains is 60 km.p.h. (37.3 m.p.h.)

and some freight trains weigh as much as 1,600 to 1,800 tons. These locomotives have given good service, and to April 1, 1951, had attained the individual mileages shown in Table 1. The comparatively low figure for No. 1006 was because of a lengthy

TABLE 1—MILEAGE OF SERIES 1000 ELECTRIC LOCOMOTIVES

Locomotive number	Service begun	Mileage to 1.4.1951
1001	23.4.1948	285,125
1002	7.5.1948	268,125
1003	16.6.1948	228,800
1004	22.12.1948	204,500
1005	24.11.1948	209,560
1006	8.1.1949	140,940
1007	7.2.1949	192,000
1008	4.3.1949	196,500
1009	30.4.1949	185,800
1010	6.5.1949	181,750

shopping period following a flash-over, with delay in obtaining the needed parts. Frequently, all ten locomotives are running simultaneously for weeks on end, and No. 1009, which was brought in recently for its first general overhaul after 200,000 miles of running, proved to be in excellent condition throughout and did not even require tyre re-turning.

Nevertheless, it has not been practicable to attain the maximum possible speed of 100 m.p.h., nor the one-hour output of 4,480 h.p. for which this class was designed, mainly because there are not sufficient lengths of line in Holland laid out for speeds higher than 125 km.p.h. (78 m.p.h.). Moreover, financial questions, and new views on passenger transport for a country the small size of Holland, have led the management of the N.S. (Nederlandsche Spoorwegen) to give up the idea of rehabilitating the main lines to suit very high speeds, and therefore no further electric locomotives of these characteristics are to be ordered.

But as the number of steam locomotives, many of which were *ex-W.D.* stock, was constantly diminishing, six

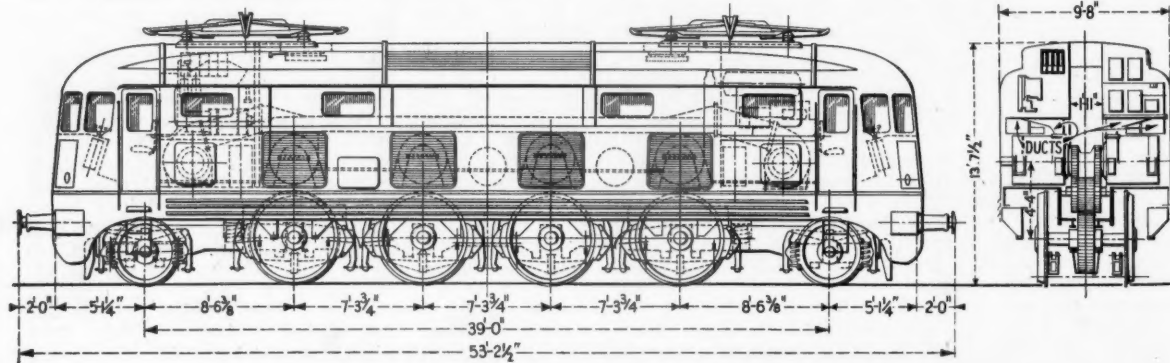


Diagram showing principal dimensions of a 1A-Bo-A1 locomotive



One of the 50 new Alsthom double-bogie 1,500-volt d.c. 2,500-h.p. mixed-traffic electric locomotives, Netherlands Railways

1,680-h.p. (maximum) Bo-Bo electric locomotives of type 300 were obtained on loan from the French National Railways for medium and light passenger and freight trains; and at about the

2 and 4 on changing from series to parallel. There is no main fuse; the traction currents are protected by two maximum current relays and by a high-speed circuit breaker rated at 3,500

amp. In addition, two coils of a differential relay are connected in series with either end of the traction circuit, thus operating the high-speed breaker at any earth leakage in any of the component parts of the circuit. The motors are force-ventilated.

Heavy Freight Haulage

To enable all traffic on the electrified lines, now totalling 659 route-miles plus another 148 route-miles under conversion, to be worked by electric power, still more electric locomotives of high capacity were required, and orders for ten Co-Co locomotives were placed with Als-Thom for delivery in 1951-52, and for 25 of the same wheel arrangement with Heemaf N.V. in Holland, to be built under licence from Baldwin-Westinghouse in the U.S.A. All of these locomotives are intended more particularly for heavy freight haulage.

The French-built locomotives are to the same general design as the well-known Nos. 7000 and 7001 of the French National Railways, except that they are geared for a lower top speed, and that motors, gears, driving wheels, and individual axle drives are the same as those of the Netherlands 1100 class of Bo + Bo locomotive, and are, indeed, to be interchangeable with them.

Other duplicate parts are the pantographs, battery, contactors, auxiliary contactors, pneumatic apparatus, and lighting equipment. The six motors can be coupled in series, series-parallel, or parallel, transition being effected by the short-circuiting method. The number of notches is 18 in series, 12 in series-parallel, and 10 in parallel. The couplers here are fitted on the underframes contrasted with the bogies in the Bo + Bo locomotives and the maximum axle load is 18½ tons.

A builder's standard is being used in
(Continued on page 273)

TABLE 2—PARTICULARS OF 1,500-VOLT D.C. ELECTRIC LOCOMOTIVES BUILT FOR THE NETHERLANDS RAILWAYS

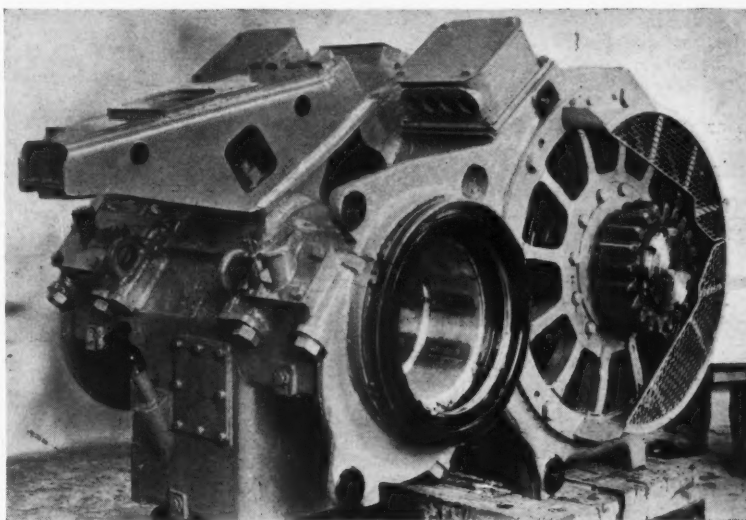
Series or class no.	1000	1100	1200	1300
Number of locos. in class	10	50	25	10
Year delivered	1948-49	1950-51	1951-52	1951-52
Wheel arrangement	1A-Bo-A1	Bo + Bo	Co - Co	Co - Co
Weight	100 tons	80	105	110
Adhesion weight	72 tons	80	105	110
Top speed	100 m.p.h.	75	87	75
Continuous motor rating	h.p. and m.p.h. 3,800 at 67	2,540 at 50	3,000 at 45	3,800 at 50
One-hour	h.p. and m.p.h. 4,480 at 63½	2,740 at 48	?	4,100 at 48
Wheel dia.	in. 61	49.3	43.4	49.3
Rigid wheelbase	ft. in. 7 3/4	11 8	15 6	15 11
Total wheelbase	ft. in. 39 0	29 4	45 6	46 6

Powers taken at 1,350 volts line current

same time an order for 50 Bo + Bo locomotives was placed with Als-Thom. The first of these, series 1100 in the N.S. list, was delivered in July, 1950, and is not dissimilar in external appearance of the cab from the same builder's locomotives for France. The class is intended for mixed-traffic purposes, e.g., freight trains up to 1,650 tons and passenger trains up to 540 tons weight and with a top track speed of 75 m.p.h.

Springborne Traction Motors

Leading particulars are given in Table 2. The traction motors are entirely springborne, and drive through a quill and the Alsthom link system with Silentbloc cushioning, the gear ratio being 20:74. Each motor has six poles and no compensation winding; maximum field weakening is 63 per cent. with the motors in series and 53 per cent. when in parallel. Nos. 1 and 3 and Nos. 2 and 4 motors are permanently connected in series to provide an anti-slipping arrangement by shunting the fields of motors 1 and 3 at starting (full series) and those of motors



A 685-h.p. (one-hour rating) force-ventilated spring-suspended motor for the 1100 series of Bo + Bo locomotives. The Alsthom form of individual axle drive is used. The same motor is used for the new 1300 series of Co-Co

New Power Signalling at York—1

Route relay interlocking installation controlling an extensive area with outlying junctions, and replacing eight mechanical signalboxes containing 868 levers

THE layout covered by the important new signalling installation at York, North Eastern Region, British Railways, which presents a number of interesting features, covers in all 33½ track-miles, and 317 track-circuits indicate the presence of trains and control the signalling. Nearly 18 miles of running lines and 5½ miles of loop, reception, and platform lines have been brought directly under the control of the new signalbox; the remaining ten are automatically signalled sections, linking up with the Copmanthorpe and Naburn Swing Bridge signalboxes, four miles westbound and southbound respectively; Skelton signalbox, 1½ miles northbound; and Burton Lane signalbox, 1½ miles eastbound from the new signalbox. Operational requirements have necessitated the provision of a total of 828 separate routes, and the concentration of their control into one signalbox. Operational requirements largest route relay interlocking system in the world. A diagram of the entire layout will be shown in Part 2 of this article.

Signals

The running signals are generally either of the 3- or 4-aspect multi-unit type, depending on the speed of traffic and braking distance, with the red aspect focused on driver's eye level at the maximum permissible range. The red aspect lamp is 12-volt 16/24 watt tripole, the more highly rated filament being a standby automatically brought into use in the event of the failure of the main filament. The other aspects have bi-pole 12-volt 25-watt lamps, with 15- and 9-watt filaments burning in parallel, the latter an under-run standby.

Route indicators are provided in all cases at diverging junctions; where traffic is moving quickly they are of the junction type, with five lamps arranged to give the "sighted" appearance of a lunar white strip inclined at 45 deg. or 90 deg., left or right of, and above, the main signal beam; the angles being dependent on the direction and number of diverging routes. Twelve-volt 14-watt double-filament lamps are used and the 110/12-volt transformer is placed close by. For low-speed turn-outs theatre-type route indicators are used, double-sided to give a rear indication for men working on the track; this is coloured lunar white. In one instance up to 19 different indications are given with this type of indicator, using 110-volt 15-watt B.C. lamps.

The position-light type shunting signals display a horizontal red and white aspect for stop and two white lights inclined at 45 deg. for proceed. Subsidiary signals beneath running signals are not provided with an "on" aspect. The white lights are provided by ordinary 110-volt 25-watt B.C.

lamps, and the red aspect by a 40-watt lamp, to make up for the loss through the red lens.

There are seventy-nine 3- or 4-aspect signals, 74 controlled from the new signalbox; 65 carry subsidiaries below them, and 43 have route or junction indicators working with them. There are 154 shunting signals.

Points

There are 277 point layouts, including 15 switch "K" crossings. All

On one baseplate fixed to four sleepers are, first, the cylinder, then the movement and facing-point lock, and, finally, the electric switch detector box. Mounted on a concrete box close by is the valve gear controlling the air supply to the point cylinder. Known as the "C.P." (constant pressure) type, this has the main pneumatically-operated valves controlling the admission and release of air from the cylinder controlled by three electrically-operated pilot valves, known as normal, lock, and



Three-aspect colour-light signal with subsidiary. Superseded Leeman Road and Waterworks signalboxes in background

points have facing point locks. The majority have electro-pneumatic mechanisms, but for a few outlying points electric machines are used. The electro-pneumatic machine, in its various stages of development, has been used for nearly 50 years in the North Eastern Region, as well as the more widely used all-electric type. Experience has shown that where the number of points justifies a compressor plant, electro-pneumatic working is not only much quicker, but lighter in maintenance. The mechanical motion is simple and rugged, the direction of movement being parallel with the track.

reverse. Either the normal or reverse valve is permanently energised; the air supply to them is controlled by the lock valve, which is only energised when the point lock relay is in the opposite position to the point detection relay, or when the latter is de-energised. Thus, before the points can be incorrectly operated by a stray feed on a valve, it is necessary for the lock valve to be energised and the correctly operated "N" or "R" valve de-energised, a very remote contingency. The position of the main valves is checked by the point detection circuit. There is economy in air with this arrangement



Typical electro-pneumatic point layout

over the earlier one in which air is constantly applied to the cylinder.

The outlying points at Chalons Whin Junction are operated by 110-volt d.c. electric point machines with combined lock and detectors from a local trickle-charged battery, the actual control being over a.c. double-element induction type point controllers, with 110-volt local and control supplies. The points are detected by 110-volt a.c. double-element vane type relays.

Track Circuits

The majority of the track circuits have a.c. reactance feed sets consisting of a 150-V.A. 110/12-volt transformer. The secondary is connected to the running rails and has an adjustable reactance (5-25 ohms) in series to control the current and therefore the rail voltage. The track relays are of the double-element resonated vane type, with 110-volt supply for the local coil and a nominal 1.2-2 volts for the control coil, depending on the contact arrangement. There are also a few "coded" track circuits, fed with an intermittent d.c. pulse, installed in some reception sidings experimentally, to determine whether they will operate more satisfactorily where the rail surface is likely to be rusty. In other cases where it is likely to be tarnished, the rails have been surfaced by welding on a strip of stainless steel.

Signalbox

The signalbox building is over 200 ft. long and about 40 ft. wide, and includes an office for the assistant station-masters, and a silence cabinet for the announcer for the station public address system. Messrooms are provided for the signalmen and maintenance staff with adequate provision for cooking and other requirements. The signalbox and power house were constructed during the rebuilding of No. 14 platform, and the building of two entirely

new platforms Nos. 15 and 16, giving York five through platforms, all long enough to cater for the heaviest East Coast expresses. The main portions of the box consist of the operating room and relay room. In the former are the panel, on which the track layout is depicted, and the console carrying the groups of switches actuated by the signalmen. The panel is carried on pillars behind the console.

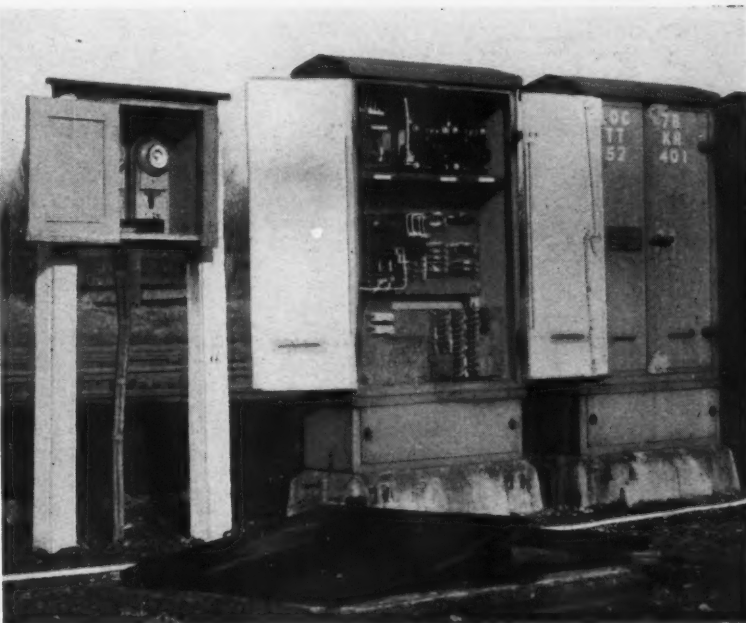
The lines are set out on an olive green matt-finished background. Individual track circuits are represented by distinctively coloured sections. "Track occupied" is given by lighting two or

more red lights at the ends of each section. White "route" lights are provided, to indicate the route set up when a switch is turned, the indicator being a strip of lights tracing the route from a signal to its extremity. The majority of the lamps are illuminated when the reverse lock relay of the route has been energised, but the lamp situated over a set of points also detects those points, giving a quick guide to the operation of all points in a route. These lights are not extinguished until the normal lock relay has been energised, freeing conflicting routes, giving the signalman a guide as to whether a route is established or has not been restored, which will prevent his setting up a different route.

The only other indication given on the panel is "train ready to start"; a lamp is illuminated in the appropriate place when a plunger has been depressed on the platform. It is extinguished when the signal concerned is cleared. Mounted on top, however, are the various display units for the train description apparatus which give a description of each train in relation to the signal it is approaching, an entirely new feature in such apparatus.

Control Console

The control console is designed for operation by four men only, directed by a traffic regulator, thus ensuring the maximum benefit from the concentration of all the traffic movements of a large and busy area into one signalbox. It is arranged in four sections, the inner two being 11 ft. 3 in. long and the outer ones 10 ft. 6 in. Each forms an angle of 120 deg. with its neighbour, making the whole visible to any one operator and avoiding the duplication of dia-



Typical apparatus case location, with Hepper's electric locks for emergency point operating handles, released from control panel

grams necessary with large power frames.

It has been estimated that such frames, to operate the points and signals individually, would have required about 450 levers, with a combined length of over 100 ft. The circuit interlocking for a lever controlling a signal reading over 29 different routes would have been extremely complicated and the use of so few signals would have rendered the frames impracticable to operate owing to the distance between some of the point and signal levers. The route switches are arranged on a sloping portion of the console, and are easily operated from a seated position. Switches controlling main colour-light signals are red and those operating other signals white, arranged in separate

groups for each signal and placed approximately below the position occupied by the signal on the panel behind.

Above each group of switches are small indicating lamps, red to show when the signal is at danger, and a green or white when it has cleared, green being used for running and white for other signals. On a small glass-top ledge in front is a printed description set out to correspond with the switch arrangement and giving the number and direction of each route. Above the switches, on a vertical face, are mounted others for the individual control of the points for maintenance purposes, and so on. These are three-position, standing normally in the centre, or vertical, and allowing the points to be operated by the route

switches. If one is turned left or right the points are thrown, provided the interlocking and control circuits permit. On each side of the point switches are normal and reverse indication lamps.

Above each point switch is a third lamp, giving a flashing indication in the event of the point detection being lost, or the position of the points being out of correspondence with the point lock relay for more than a few seconds. This has been provided (along with the route lights) to assist the rapid location of a point failure, such as that caused by an obstruction in the switch blades. Above the individual point switches are arranged the control units for the train description apparatus, shunters' plungers, and so on.

(To be continued)

Diesel Trains in Northern Ireland

For high-speed summer services and all-in tours

THE ten diesel train sets, comprising 20 railcars, brought into use by the Great Northern Railway (Ireland) between June, 1950, and March, 1951, have been working throughout the summer. The daily booked mileage for high-speed diesel trains has been approximately 2,500 or about 25 per cent. of the total daily passenger booked mileage. With the older types of railcar used on suburban services the total daily mileage is about 33½ per cent. The daily mileage run by individual high-speed sets ranges from 200 to 310.

The principal services operated by the trains during the summer are:—

7.30 a.m.	Dublin to Belfast express
11 a.m.	Dublin to Belfast non-stop "Enterprise"
12 noon	"
2.45 p.m.	Belfast to Dublin express
4.45 p.m.	" " non-stop "Enterprise"
4.50 p.m.	" " " "
2.10 p.m.	Belfast to Derry express
6.40 p.m.	Derry to Belfast express

The composition of the "Enterprise" services shown in the table is two railcars and one intermediate coach. Other services are worked with two railcars and two intermediate coaches. Seating ranges from 136 to 228 of which 24 are first class.

Secondary services operated are those on the Belfast-Newry, Belfast-Newcastle, Belfast-Antrim, and Dundalk-Dublin sections. The normal train composition is three cars of two railcars with an intermediate coach, but sometimes an additional ordinary coach is attached to meet traffic requirements, while four-wheel vacuum vehicles, horse boxes, cattle wagons, fish vans, and so on, are hauled on secondary services. On the Dublin-Belfast services a buffet coach is provided and there is a tray service to all seats.

In recent years Dublin has developed

to a considerable extent as a holiday centre and there is a great demand through the summer for day trips of all kinds. Often these diesel trains have been used for the following tours:—

	Rail	Mileage	Total
Hills of Donegal ...	312	80	392
Mountains of Mourne ...	164	75	239
Glens of Antrim ...	226	102	328
Donegal Bay and Highlands	312	83	395

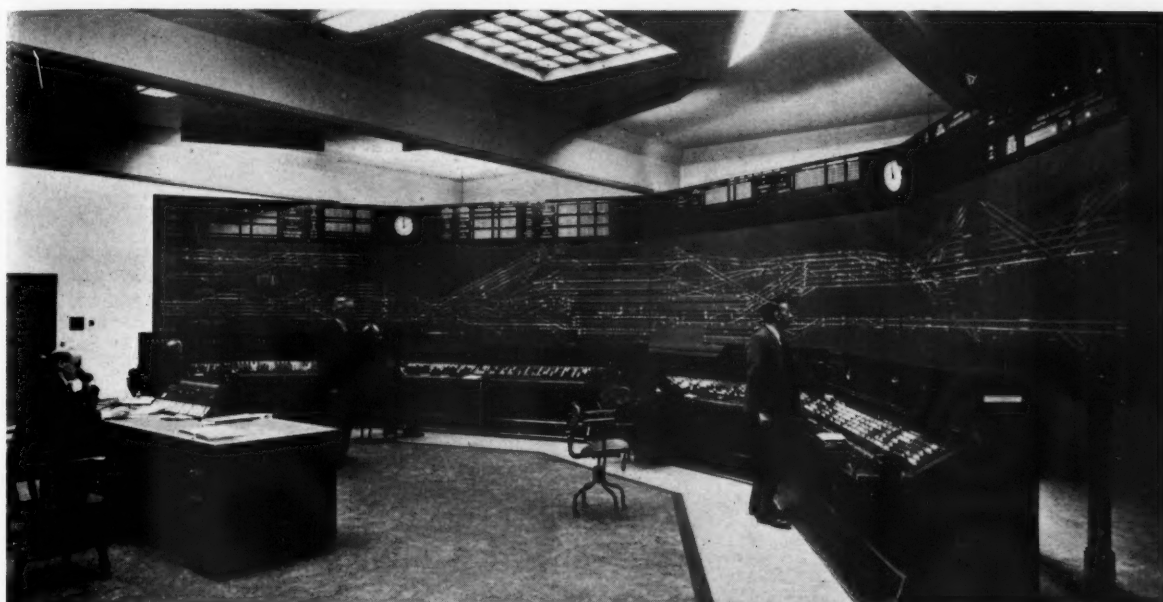
The charges, ranging from 32s. 6d. to 37s. 6d., include lunch and high tea, served during the train journey, and a bus tour of the destination area.

The railcars, which were described in our issue of June 2, 1950, were designed and built by A.E.C. Limited, and the bodies were designed and constructed by Park Royal Vehicles Limited in conjunction with the G.N.R.(I.). The intermediate coaches with buffets were built by the G.N.R.(I.) in its Dundalk Works.

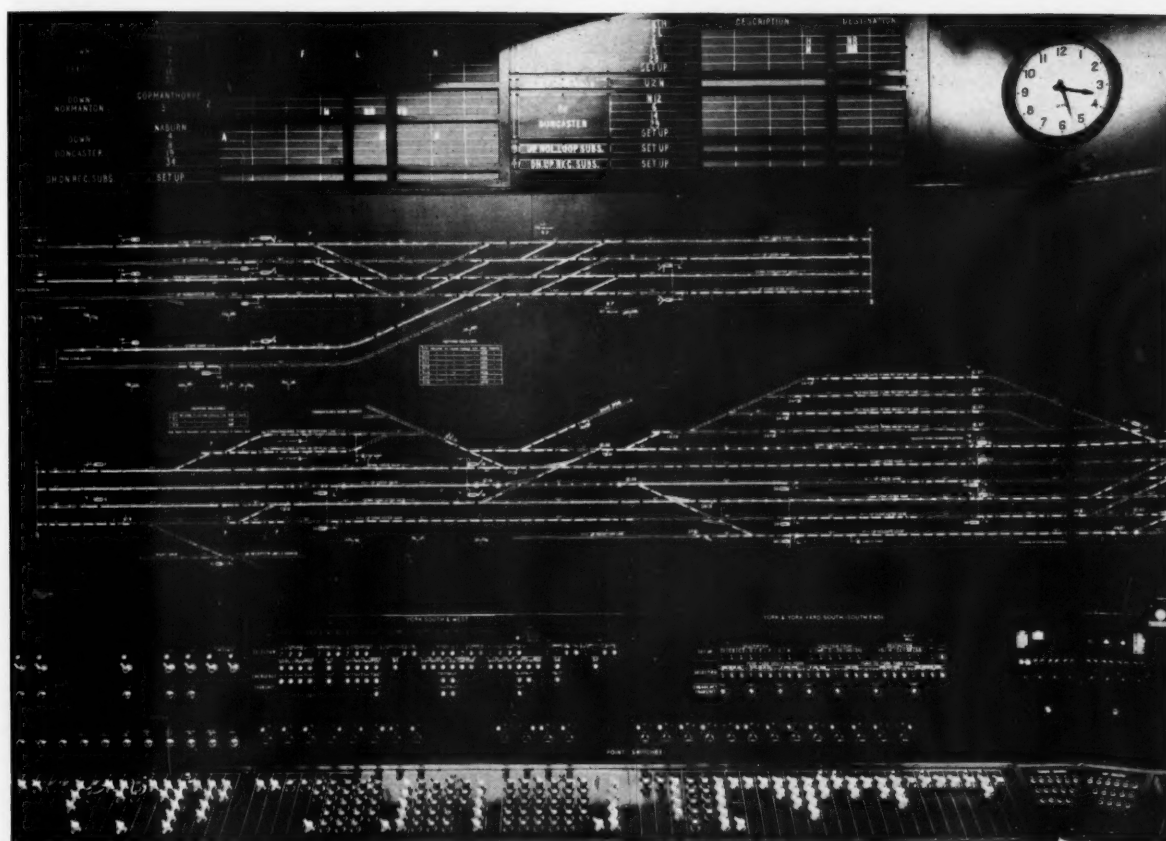


Some of the diesel trains placed in service on the G.N.R. (I.) during the past twelve months

New Power Signalling at York—1

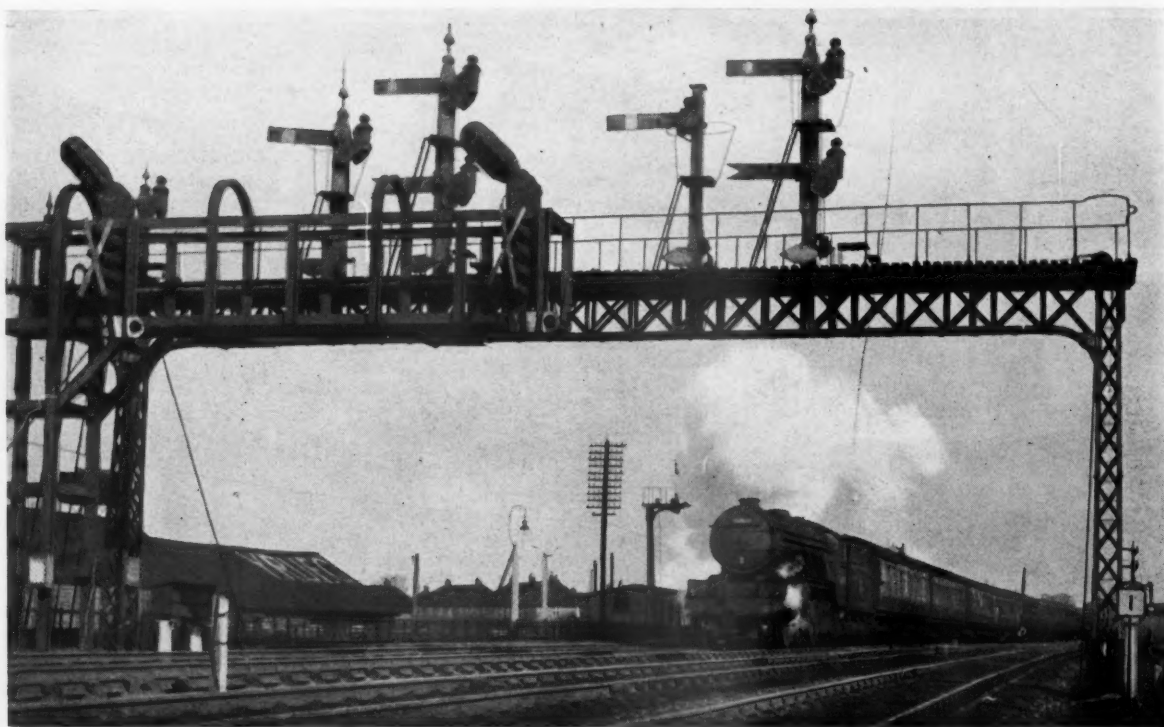


Signalbox in full operation, with the staff at work



South end of control console, with diagram and train describer above

New Power Signalling at York—1



Four-aspect colour-light signals with position-light junction indicators and superseded semaphores



York Locomotive Yard box, containing 295 levers in one continuous row, now demolished

RAILWAY NEWS SECTION

PERSONAL

BRITISH RAILWAYS APPOINTMENT

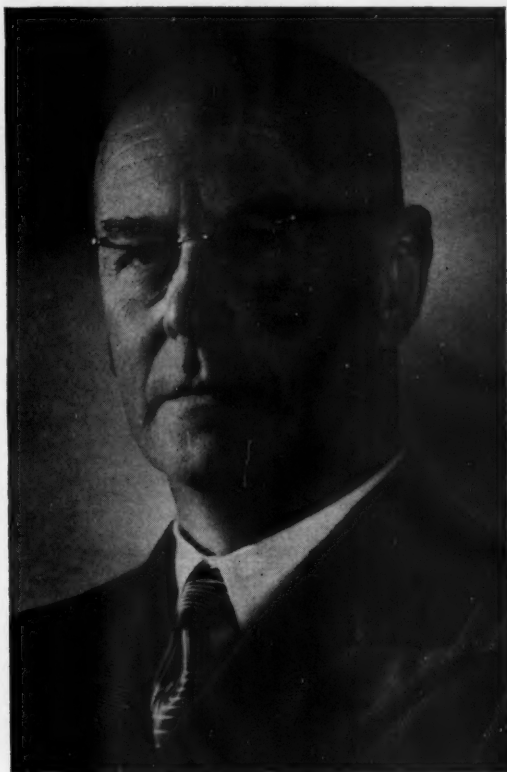
The Railway Executive has announced that Mr. M. G. R. Smith, Assistant Civil Engineer, Western Region, British Railways, has been appointed to the position of Civil Engineer, Western Region, as from November 10, on the retirement of Mr. Allan S. Quartermaine, Chief Engineer, Western Region.

Mr. William E. Allison, Manager of the Canadian Pacific Railway Mail & Baggage Traffic Department at Montreal, has retired and has been succeeded by Mr. J. Earle Tweedy, General Mail & Baggage Agent at Montreal.

Mr. C. T. Venugopal, Financial Adviser & Chief Accounts Officer, Bengal-Nagpur Railway, has been appointed Financial Adviser & Chief Accounts Officer, Bom-

1936. He had at one time been an Assistant Engineer with the Lancashire & Yorkshire Railway and in 1910 was elected Vulcan Research Fellow at Manchester University.

Mr. A. H. Murison, A.M.I.C.E., Assistant Chief Civil Engineer, New Zealand Government Railways, who, as recorded in our August 17 issue, has been appointed Chief Civil Engineer, joined the De-



Mr. H. C. Lusty

Appointed General Manager, New Zealand Government Railways



Mr. A. H. Murison

Appointed Chief Civil Engineer, New Zealand Government Railways

Mr. H. C. Lusty, M.I.C.E., M.N.Z.I.E., Chief Civil Engineer, New Zealand Government Railways, who, as recorded in our July 27 issue, has been appointed General Manager, joined the Department as a civil engineering cadet in 1912 in the Chief Engineer's Office at Wellington. After training and experience in several North Island and South Island districts, he was appointed Assistant District Engineer at Christchurch in 1924. He became District Engineer in 1931, and after two years in the Dunedin and Invercargill districts, was promoted to the position of Inspecting Engineer at Wellington. In 1936 he was appointed Assistant Chief Civil Engineer, and in 1944 became Chief Civil Engineer. Mr. Lusty has, for many years, been actively associated with the New Zealand Institution of Engineers, of which he was President in 1949. In 1947-48, he visited Australia, South Africa, Great Britain, Sweden, Canada, and the U.S.A. to obtain first-hand information on all phases of railway organisation and operation.

bay, Baroda & Central India Railway, and has been succeeded in his former position by Mr. Apjit Singh, formerly Financial Adviser & Chief Accounts Officer, Oudh Tirhut Railway.

We regret to record the death of Mr. James Campbell, who retired from the Buenos Ayres Great Southern Railway, Argentina, in 1947 as Inspecting Engineer.

Among those who left Liverpool for Canada on September 4, in the liner *Empress of France*, were Mr. J. A. Ross, Managing Director, Ransome & Marles Bearing Co. Ltd., and Mr. C. E. Jefferson, Vice-President of Traffic, Canadian Pacific Railway, who has been on a business visit to Canadian Pacific offices and organisations in Europe.

We regret to record the death on August 28 of Dr. Gilbert Cook, D.Sc., F.R.S., Regius Professor of Civil Engineering & Mechanics, University of Glasgow, since

partment as a civil engineering cadet in 1915, and after serving two years overseas in the first World war, held positions as Assistant Engineer at Auckland, Wellington, and Wanganui. In 1935, following a period as District Civil Engineer at Ohakune, he was attached to the Chief Civil Engineer's Office at Wellington for special duties, and was appointed Inspecting Engineer in 1936. Mr. Murison had been Assistant Chief Civil Engineer since 1944.

M. André Marguerat, General Manager of the Montreux-Oberland Bernois Railway, who, as recorded in our July 6 issue, has been appointed Divisional Manager, Lausanne, Swiss Federal Railways, was born at Lutry in 1902, where he received his primary education. Afterwards he attended secondary and technical schools at Lausanne and the School of Engineering at Lausanne University, where he took his diploma as Mechanical Engineer in 1924. He received practical experience in the Swiss Federal Railways shops at Yverdon



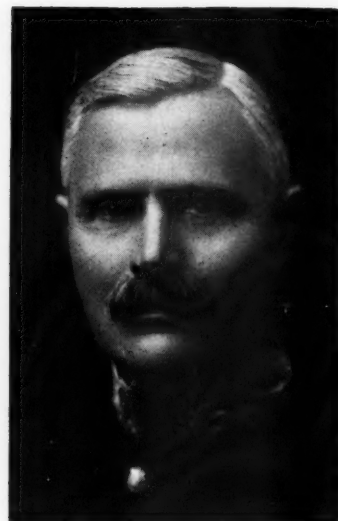
M. André Marguerat

Appointed Divisional Manager, Lausanne,
Swiss Federal Railways



The late Mr. F. L. Creswell

Chief of Engineering Department, Buenos Ayres
Great Southern and Buenos Ayres Western
Railways, Argentina, 1933-45



The late Professor Royal Dawson

Chief Engineer, Indian Railway Board,
1919-21

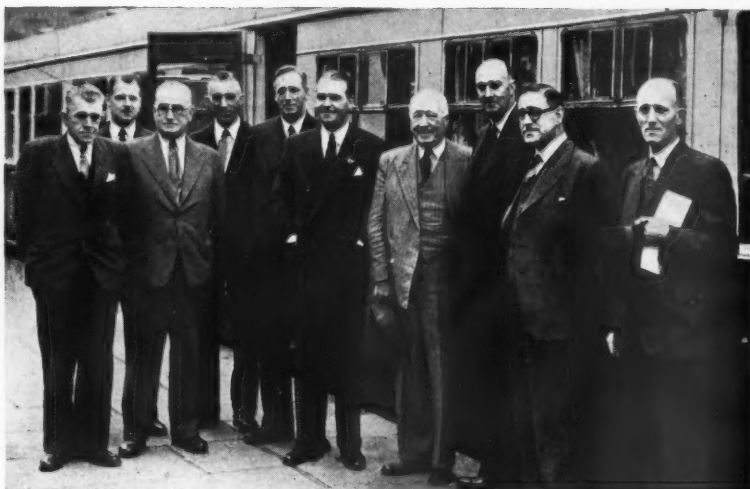
in 1924, and after a year at the Oerlikon Works, served in the shops at Bienne and Berne. Between 1927-37 he passed through various grades in the motive power and workshops services at Lausanne and at Berne. In 1935 he was transferred to the First Division to gain experience in station and train working and subsequently became Operating Inspector at Lausanne. In 1937 he was recalled to motive power duties at Lausanne with the title of Chief of Section, and in 1945 he became General Manager of the M.O.B.

We regret to record the death on August 27, at the age of 67, of Mr. F. L. Creswell, M.C., M.I.C.E., who retired from the position of Chief of the Engineering Department, Buenos Ayres Great Southern and Buenos Ayres Western Railways, Argentina, in 1945. He completed his

technical training at the City & Guilds Central Technical College and joined the Buenos Ayres Western Railway in 1906. During the 1914-18 war Mr. Creswell served for over four years in the Royal Garrison Artillery; he attained the rank of Major and was awarded the Military Cross and the Belgian decorations of the Ordre de la Couronne and Croix de Guerre. On returning to Argentina in 1919 he was appointed Assistant Engineer-in-Chief, B.A.W.R., which post he held until September, 1929, when he was made Acting Traffic Manager. In April of the following year he was appointed Chief Engineer of the Way & Works Department, and later in a similar capacity on the B.A.G.S.R. In 1933, on the administrative unification of the two railways, Mr. Creswell was confirmed as Chief of the Engineering Department.

Professor F. G. Royal Dawson, V.D., M.I.C.E., M.Inst.T., M.Inst.E. (Ind.), Chief Engineer of the Indian Railway Board, 1919-21, whose death we recorded briefly last week, was born in 1867 and educated at the Elizabeth College, Guernsey, and at the Royal Indian Engineering College, Coopers Hill. After a year in the G.W.R. works, Swindon, he proceeded to India on appointment as Assistant Engineer, Indian State Railways. Between 1903-5 he was engaged on the Agra-Delhi Chord Construction, and from 1905 until 1908 was attached to the Consulting Engineer's Office at Bombay. He was on open line work on the Eastern Bengal Railway during the years 1909-10, and was then appointed Senior Government Inspector of Railways at Calcutta, which post he held until 1917. In that year he was appointed Chief Engineer of the North Western Railway, and in 1918 he was made Senior Government Inspector of Railways. In 1919 he became Chief Engineer of the Railway Board and Chairman of the Indian Railway Bridge Committee, and relinquished these positions in 1921. During the 1914-18 war he was for some months an Examiner in the Aircraft Inspection Department, and in 1917-18, was Colonel commanding 1/24th North Western Railway Battalion, Indian Defence Force. In 1926 he became Professor of Roads & Railways, Royal School of Engineering, Cairo, and later served on the Egyptian Light Railways Commission.

Inspection of G.N.R.(I.) Diesel Train at Belfast



Lord Rusholme, Member, British Transport Commission, with Officers of the G.N.R.(I.) and U.T.A., and Mr. C. F. Cleaver, Railcar Director, A.C.V. Sales Limited, at Belfast Great Victoria Street Station (see accompanying paragraph)

The visit to Northern Ireland by Lord Rusholme, Member, British Transport Commission, which was referred to in our August 31 issue, included an inspection of a G.N.R.(I.) high-speed diesel train working in the Dublin-Belfast "Enterprise" service. The accompanying illustration taken on the occasion of the inspection at Belfast Great Victoria Street Station on August 23, shows:—

Left to right Messrs. Jas. Courtney, Chief Engineer, U.T.A.; J. C. Bailie, Operating Superintendent, G.N.R.(I.); C. F. Cleaver, Railcar Director, A.C.V. Sales Limited; A. M. Beaton, Advertising and Publicity Superintendent, G.N.R.(I.); W. Archibald, Mechanical Engineer, U.T.A.; H. S. Knott, Traffic Manager, G.N.R.(I.); J. S. Rodgers, Chairman, U.T.A.; Lord Rusholme; Mr.

J. A. Clarke, General Manager, U.T.A.; Mr. H. E. Wilson, Assistant Mechanical Engineer and Works Manager, G.N.R.(I.).

We regret to record the death in Buenos Aires of Mr. Harold Boam, at one time Outdoor Assistant to the Traffic Manager, Central Argentine Railway.

Mr. H. Jeanes, Stationmaster, Bristol Temple Meads, Western Region, has retired after over 50 years in the railway service.

Mr. Jackson Millar and Mr. H. W. Fulton have joined the board of Leyland Motors Limited.

Mr. Grahame Martin Turner, a Director of Thomas De La Rue & Co. Ltd., left London on September 3 for a 30,000-mile tour of New Zealand and Australia. He will study the scope for the application in Australasia of Formica, his company's laminated plastic, particularly for use as railway-carriage and cabin-interior paneling. He flew to Auckland via New York and San Francisco and will be away about ten weeks, leaving Darwin for an extended homeward journey on November 4.

Harland & Wolff Limited has announced that Mr. I. C. Green, Manager of the Finnieston Diesel Engine Works, Glasgow, has retired for reasons of health and Mr. Ernest F. Souchotte has been transferred from the company's Belfast Works to take charge of Finnieston Works. Mr. W. C. Crawford has, for reasons of health, retired from the management of the Scotstoun Works, Glasgow, and has been succeeded by Mr. Frederick H. Duncan, Assistant Manager.

The Minister of Transport has appointed Mr. W. H. Powell to be a member of the Transport Users Consultative Committee for the London Area, in place of the late Mr. E. W. Rainer, and Mr. H. Smith to be a member of the Transport Users Consultative Committee for the East Midland Area, in place of the late Mr. J. S. Blackmore. Mr. W. H. Powell is Executive Transport Manager for Falk, Stadelmann & Co. Ltd. and Mr. H. Smith is Chairman of the Transport Committee of the Leicester Chamber of Commerce and a member of the Association of British Chambers of Commerce Transport Committee.

Mr. K. N. Eckhard, M.I.E.E., M.I.Loco.E., M.Inst.T., formerly Chief Electrical Engineer, General Mitre Railway, Argentina, who, as recorded in our July 13 issue, has been appointed to the Board of Brush Bagnall Traction Limited as Director & General Manager, became a pupil with Spagnoletti Limited and later served an apprenticeship with London United Tramways. In 1909 he joined the London Electric Railways. He left for Argentina in 1912, and in the next year joined the Central Argentine Railway, then engaged on suburban electrification. In 1920 he was appointed Resident Engineer in charge of the Electrification Section, C.M.E. Department. When that section became a separate department in 1926, he was appointed as Chief Electrical Engineer. He was also responsible for the maintenance of diesel railcars, and in 1945 was a member of the Motive Power Committee sent by the British-owned railways in Argentina to the U.S.A. and Europe to investigate the latest developments in diesel-electric traction. Mr. Eckhard retired as Chief Electrical Engineer, General Mitre Railway, in 1949.

M. RAOUL DAUTRY—AN APPRECIATION

The following appreciation was contributed by Mr. John Elliot, Chairman, Railway Executive, to a recent issue of *The Times*:—

It is as a railway manager in the highest tradition, rather than as a Minister, that Raoul Dautry will be remembered. He had made his mark as a young engineer in the service of the Nord company, and when the French Government in the late twenties were looking for a new Director-General for its moribund State system (Etat, formerly Ouest) his name was highly recommended to them by the Rothschild interests of the Nord. How, by his exceptional qualities of technical competence, bounding energy, and brilliant personality, he completely transformed, in a few years, the old worn-out Etat into an efficient and popular system, is railway history. What is particularly interesting to note in these difficult days is the fact that he held staff morale to be the first essential—before the restoration of technical efficiency. By a vast construction enterprise he built blocks of modern flats for his railway families in Paris and other cities on the system; and by the intense application of what we now call "welfare" he restored the staff spirit and gave them confidence in the management's good will. (One cannot resist, in face of today's severe restrictions, a sigh of envy at the opportunities which lay ready to Dautry's hand, of which he made such splendid use.)

Following quickly in succession came complete renewals of hundreds of miles of main-line track, with modern signalling, a big influx to traffic of new, powerful locomotives, steel passenger coaches, freight wagons, and so on. Public approval, expressed in increased traffic, matched the growing zeal of the staff, and when, in 1936, the S.N.C.F. was born to embrace all France's railway systems, the "Cinderella" Etat was fully up to Nord and P.L.M. standards.

True, Dautry failed to make the Etat pay. That, in face of an almost wholly agricultural territory to serve, was impossible. But, as Dautry said to me on one occasion: "If this railway has cost the taxpayer a lot of money, with little return in the past, today, at least, the country is getting good value for its money. That was my goal from the start."

He saw the new S.N.C.F. through its early days, with all the problems inseparable from an amalgamation of a number of proud, long-established companies—those same problems with which our British Railways have had to grapple since 1948—and then, when war came, he joined the Government as Minister of Armaments. Before his great gifts could really be brought to bear on the fearful task of re-equipping the French fighting services France was out of the war. It was a tragedy for Dautry. He retired into obscurity in the south, but, as some of us knew, he was quietly bringing aid and comfort to the allied cause as and when he could.

We regret to record the death on September 1 of Mr. Benjamin P. Greenwood, Director, Vulcan Foundry Limited.

Dr. C. Dannatt, Director & Chief Electrical Engineer, Metropolitan-Vickers Electrical Co. Ltd., has been appointed Director of Research & Education, in place of Sir Arthur P. M. Fleming, who is remaining on the board. Dr. Dannatt also becomes Assistant Managing Director. Mr. H. West, Assistant Chief Electrical Engineer, succeeds Dr. Dannatt as

Chief Electrical Engineer and also joins the board. Sir Arthur Fleming has been appointed Director of Research & Education, A.E.I. Limited.

The Iron & Steel Corporation of Great Britain has announced the reconstitution of the boards of Directors of the Park Gate Iron & Steel Co. Ltd., and the Darwen & Mostyn Iron Co. Ltd. Sir Allan Grant and Colonel D. S. Branson, part-time Directors of the Park Gate Iron & Steel Co. Ltd., have resigned and Mr. T. Fairlie, Works Superintendent, and Mr. J. Wadsworth, Staff & Labour Superintendent, have become Directors of the company. Mr. R. H. Storey and Mr. R. A. Storey, part-time Directors of the Darwen & Mostyn Iron Co. Ltd., have retired, and the board now consists of two part-time and two full-time Directors under the Chairmanship of Mr. Reith Gray.

Mr. G. F. Huskisson, Head of Development & Statistical (Passenger) Section, Commercial Superintendent's Office, Liverpool Street, Eastern Region, who, as recorded in our June 22 issue, has been appointed Assistant District Goods Superintendent, (London Suburban), Gordon Hill, was educated at Merchant Taylor's School and entered the service of the L.N.E.R. as a clerk at Loughton in 1934. After serving at various suburban stations, he was transferred to the Passenger Manager's Office, Liverpool Street, in 1936, where he remained until 1937, when he was appointed to a position in the Chief General Manager's Office, L.N.E.R., Kings Cross; he was appointed as a traffic apprentice in 1938. Mr. Huskisson served with the Royal Engineers (Transportation) from 1939 to 1946 and rose to the rank of Lt.-Colonel; he was Mentioned in Despatches for service in Burma, where he commanded No. 1 Railway operating Group, Indian Engineers. He resumed duty with the L.N.E.R. in 1946 as Deputy Head of the Development & Canvassing Section, Passenger Manager's Office, Liverpool Street, became Head of the Section in 1947 and was appointed Head of the Development & Statistical (Passenger) Section, Commercial Superintendent's Office, Liverpool Street, in 1949. Mr. Huskisson formed and commands No. 153 Railway Traffic Squadron, R.E., a unit of the Army Supplementary Reserve.

Electric Locomotives of the Netherlands Railways

(Concluded from page 265)

the American-built locomotives, the design thus being quite different from those built in France, Switzerland, and Holland to Dutch requirements. The cab is carried on swing bolsters of conventional type, and bogie frames and bolsters are steel castings. The traction motors are of the nose-suspended pattern with non-resilient pinions and gear wheels. There is no high-speed circuit breaker in the electrical equipment and protection of the h.t. apparatus is obtained by a main fuse and three maximum current relays. There are 36 acceleration notches—16 in series, eleven in series-parallel, and nine in parallel, with 12 economic positions. Field weakening is in three stages, at notches 16, 27, and 36. Maximum axle load is estimated at 17½ tons.

British Transport Commission Statistics (Period No. 7)

Summary of the principal statistics for the four-week period ending July 15

STAFF

—	B.T.C. Head Office	British Railways	London Transport	British Road Services (Road Haulage)	Road Passenger (Provincial & Scottish)	Hotels & Catering	Ships & Marine	Inland Waterways	Docks, Harbours, Wharves	Railway Clearing House	Commer- cial Adver- tisement	Legal	Films	Total
Number ...	254	599,765	98,959	79,645	61,632	18,798	6,491	4,910	20,033	644	204	295	36	891,396
Inc. or dec.	—	+86	-323	+639	+687	+187	+41	+18	+6	-1	—	-1	+1	+1,340

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS

—	Four weeks (Period No. 7)		Aggregate for 28 weeks	
	1951	1950	1951	1950
	£000	£000	£000	£000
British Railways—				
Passengers	10,719	10,361	53,189	54,580
Parcels, etc., by passenger train	2,614	2,491	17,366	15,758
Merchandise	7,746	6,944	51,992	45,190
Minerals	2,891	2,617	19,133	17,035
Coal & coke	6,941	6,318	48,456	40,226
Livestock	61	84	519	628
	30,972	28,815	190,655	173,417
British Railways—				
C. & D. and other road services	865	798	5,508	4,950
Ships and Vessels	1,313	1,208	5,555	5,070
London Transport—				
Railways	1,228	1,068	8,550	7,703
Buses & coaches	2,757	2,449	17,660	16,570
Trams & trolleybuses	759	814	5,273	5,723
	4,744	4,331	31,483	29,996
British Road Services—				
Freight charges, etc.	6,157	4,925	40,517	31,804
Road Passenger Transport	3,945	3,464	21,699	19,477
Docks, Harbours & Wharves	1,158	962	7,015	6,228
Inland Waterways	149	134	937	844
Hotels & Catering	1,367	1,184	8,304	7,510

LONDON TRANSPORT

—	Passenger journeys	Inc. or dec. per cent. over 1950	Car miles	Inc. or dec. per cent. over 1950
Railways... ..	000 47,744	+ 1.3	000 18,188	+ 1.6
Buses & coaches	233,436	+ 8.2	26,407	+ 7.0
Trams & trolleybuses	75,667	-14.7	7,515	-12.2
Total	356,847	+ 1.5	52,110	+ 1.9

INLAND WATERWAYS
Tonnage of traffic and ton-miles

—	Tonnage	Inc. or dec. per cent. over 1950	Ton miles	Inc. or dec. per cent. over 1950
Coal, coke, patent fuel & peat	000 467	+ 0.6	000 7,043	- 0.7
Liquids in bulk	148	+18.7	3,984	+27.3
General merchandise	339	+11.5	5,163	- 0.7
Total	954	+ 6.8	16,190	+ 5.0

BRITISH RAILWAYS
Rolling Stock Position

—	Operating stock	Number under repair	Available operating stock	Serviceable stock in 1950
Locomotives	19,374	3,107	15,818	16,030
Coaching vehicles	57,803	4,740	53,063	52,923
Freight wagons... ..	1,110,064	87,452	1,022,612	998,216

BRITISH RAILWAYS

Passenger Journeys (Month of May, 1951)

Full fares	Monthly returns	Excursions, cheap day, etc.	Other descriptions	Workmen	Season tickets	Total	Inc. or dec. per cent. over 1950
6,457,000	10,351,000	22,180,000	4,344,000	18,653,000	17,856,000	79,841,000	- 1.2

BRITISH RAILWAYS

Freight Tonnage Originating and Estimated Ton-Miles (Period No. 7)

—	Minerals	Merchandise	Coal & coke	Livestock	Total	Inc. or dec. per cent. over 1950
Tons originating	000 4,663	000 4,040	000 12,602	000 38	000 21,343	+ 0.2
Ton-miles	394,359	532,056*	799,013	—	1,725,428	+ 1.5

* Includes livestock

BRITISH RAILWAYS (Period No. 7)

—	Total steam coaching train-miles	Total electric coaching train-miles	Total freight train-miles	Freight train- miles per train engine-hour	Net ton-miles per total engine-hour	Locomotive coal consumption	
						Total tons	Lb. per engine-mile
1951	15,674,000	3,835,000	10,865,000	8.7	604	1,018,000	58.8
1950	16,274,000	3,844,000	10,885,000	8.8	595	1,037,000	58.8

Ministry of Transport Accident Report

Alloa Junction, Scottish Region,
British Railways; January 10, 1951

Colonel R. J. Walker, Inspecting Officer of Railways, Ministry of Transport, inquired into the accident which occurred at 8.40 a.m. on January 10, 1951, at Alloa Junction, when the 7.0 a.m. express, Perth to Glasgow, consisting of six bogie coaches drawn by a Class 5 4-6-0 engine, No. 44786, travelling through the section under Block Regulation 25, all communication having broken down, ran at some 20 to 30 m.p.h. into a light engine standing at the home signal, doing considerable damage to both engines and causing telescoping between the first and second coaches. One passenger was killed and another fatally injured; 14 others were injured, nine being detained in hospital. It was daylight with good visibility, but a heavy snowstorm had just ceased and the rails were wet.

Ambulances were not called, owing to local conditions, and the injured were tended in nearby cottages by railway staff and passengers, some being medical students, and taken later to Stirling by train, reaching there at 9.58 a.m. The accompanying dia-

gram shows the lines, signals, etc., essential to an understanding of the case.

Evidence

The night signalman at Alloa Junction, who went off duty at 6.0 a.m. experienced difficulties soon after coming on duty at midnight and was obliged to call out a man for snow duties at points. When the up distant was found to be failing he asked Plean to stop all trains and advise them. It was still snowing heavily when he was relieved. The signalman coming on duty learned these facts and at 7.0 a.m. found communication with Plean had failed. Shortly after 8.0 a.m. a platelayer arrived and was told to go to the up distant with flags and detonators. The light engine concerned in the accident had to be stopped at the home signal to allow a branch train to pass. Just as that had cleared the points the express was seen coming through the bridge 600 yd. away.

accident. He did not tell drivers to pull forward and stop for guards to be informed and only one train did so stop. He shouted to the others and thought they understood. Altogether he passed four trains and light engines into the section under Regulation 25.

The sub-ganger said he warned four trains about the distant signal and about 7.0 a.m. was told to warn trains that all communication had failed. He only had occasion to do this with a pair of coupled light engines before the relief signalman took over who, he said, gave him the same messages as the other man, including reference to the failed signal. He gave the message to two trains and to the light engine and train involved in the collision. First of all he said he was certain he mentioned the signal to all drivers, but later said he was a little confused and could not be certain.

The driver of the light engine No. 45482 said he was told at Plean that there was no communication with Alloa Junction, but

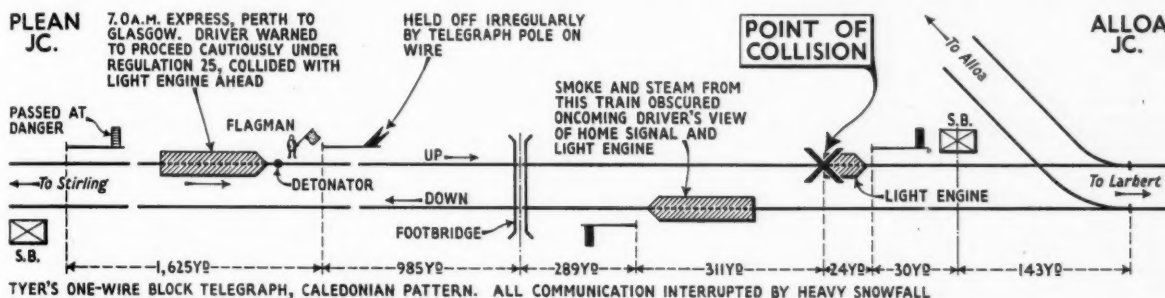


Diagram illustrating circumstances of the accident at Alloa Junction, Scottish Region, January 10, 1951

gram shows the lines, signals, etc., essential to an understanding of the case.

Weather Conditions

Heavy snow commenced about 12.30 a.m. and continued until daylight. Just after 5.0 a.m. the up distant signal was found to be held off by a telegraph pole fallen on the wire and the Plean signalman was instructed to caution all trains. This was done for him by a sub-ganger, as the signalbox is 20 ft. high and on the down side. At about 7.0 a.m. more poles fell and all communication with Plean failed. Time interval working was introduced and the ganger informed enginemmen accordingly, but made no further mention of the signal. Two coupled light engines and two trains were despatched in this way, and then the light engine involved, which entered the section at 8.22 a.m. It was held at Alloa Junction home signal.

The express entered the section at 8.38 a.m., duly cautioned. The driver sighted the junction distant "off" but exploded a detonator there and saw a flagman showing a yellow flag. The train was allowed to coast with slight brake application, but steam from another on the down line prevented the light engine being seen until the train was 100 yd. away. An emergency brake application was then made, but the engine was driven forward 93 yd. with the train engine embedded in its tender. Telescoping demolished the rear two compartments of the first and

The signalman thought the speed on impact was at least 35 m.p.h. although reluctant to estimate it. He telephoned to Larbert for assistance, but learning later that that box could not get through to anybody, brought up the 7.15 train from there to get the injured to Stirling.

The lengthman said that on his way to the signal he saw the light engine coming through the bridge; he put down detonators and showed his flag. He tried unsuccessfully to move the pole on the wire and then continued up to the signal. Soon after that the express passed at "a fairly good speed." He thought that the driver acknowledged his caution by a wave.

The signalman at Plean who came on at 10.0 p.m. was not relieved until 7.30 a.m., owing to the storm. He sent for a platelayer to take up snow duties and a sub-ganger arrived at 1.30 a.m. The signalman arranged for drivers to be cautioned about the defective signal and the message was given to every train. After failure of all communication he instructed the sub-ganger to tell drivers of that and caution them, and also say that the signal was failing. Two light engines were so warned.

His relief, who was informed of the position, said he repeated the necessary instructions to the sub-ganger but made no mention of the failed signal, because the other man had not told him of it and he only realised the facts when noting the entry in the register 1½ hr. after the

nothing was said about the distant signal and he was a little surprised to see it "off"; he did not take it as indicating that the section ahead was clear. He exploded a detonator and saw the lengthman's flag. On arriving at the home signal he sent his fireman to the box, who later returned. His guard, who was in the cab, shouted that the express was approaching and they all jumped clear. Afterwards he saw another train coming and shouted to the passengers in the express to get out, but this train stopped some distance away.

The express driver said he was informed at Plean of the block failure and realised he must proceed under Regulation 25. Nothing was said about the failed distant. He noticed this "off" and gave his engine "a little bit of steam," speeding up to 30 m.p.h. He saw no flagman until he exploded the detonator. He waved to indicate he understood the signal to be defective, passed under the bridge and gradually applied the brake. On catching sight of the home signal and engine he made an emergency application and reversed. His wheels locked and he collided with the engine at about 5 m.p.h. He had no time to open sanders.

He denied that the clear distant indication misled him and he realised he was not supposed to take any notice of it while proceeding through the section. He did not think weather conditions caused him to misjudge his speed. It was the greasy

state of the rails which deceived him. He came fully prepared to stop at the home signal, had they not been so bad, but admitted he made an error of judgment and the train was not properly under control.

The fireman said the speed on collision was about 15 m.p.h. The guard noticed that they passed the Plean starting signal at danger, and gathered that the driver had been instructed accordingly. He did not see the signalman. When protecting his train he stopped the next by putting down a detonator and whistling.

Inspecting Officer's Conclusion

The driver did not have his train under control and approached Alloa Junction too fast. His speed on collision was certainly not less than 20 m.p.h. and probably was nearer 30. This serious error of judgment was brought about mainly because he was not fully alert and paying proper attention to driving. Colonel Walker thinks he undoubtedly allowed himself to be misled by the failed signal, and possibly altered driving conditions due to the snow storm might have further contributed to his mistake. He was not informed about the signal and said he

opened the regulator on sighting it. It is reasonably certain he unthinkingly took it for granted that the road ahead was clear. There was no justification for doing so, but his action was probably mechanical, and must, on the falling gradient, have appreciably increased the speed and severity of the collision. He realised his mistake about the signal in ample time to bring his train under control, but made no attempt until about 100 yd. from the engine. It is clear he had no idea how fast he was travelling.

He did not try to evade responsibility but spoke straightforwardly. He was convinced his failure was caused mainly by the greasy rail. That is considered unlikely, as snow had ceased and other drivers had no difficulty in braking. Colonel Walker feels certain he was travelling too fast to stop whatever the rail conditions. He is 61, with 32 years service as driver, with a clear record.

Although under Rule 127 (xxiii) drivers are instructed not to observe signals when working under Regulation 25, Colonel Walker considers the driver should have been warned about the failed signal and put in possession of all known informa-

tion. Evidence regarding the passing of messages at Plean was in places contradictory, as witnesses had no precise remembrance of what was said and done; this should not have been so. It was a serious matter, to revert from absolute block to the time interval, and called for the greatest care and precision. The signalmen at Plean would have been wiser to have left the box and given instructions personally, both to drivers and guards.

Remarks

This somewhat loose method of passing messages gives rise to the question of whether a more rigid formal procedure should not be introduced when making such a change. It is common knowledge how easily verbal messages can be misunderstood and frequently distorted when sent through a third person. Colonel Walker suggests the institution of a printed order, to be given to both driver and guard, which would be no more than exists for wrong line working, or passing a passenger train over a permissive line. The conditions of time interval working are certainly no less important than either of those contingencies.

Institution of Railway Signal Engineers

Summer meeting at York

The summer meeting of the Institution of Railway Signal Engineers was held on September 1, taking the form of a visit, by permission of Mr. H. A. Short, Chief Regional Officer, North Eastern Region, to the recently completed large relay-interlocking power signalling installation at York.

The party of nearly 100, most of whom travelled from London, was led by the President, Mr. S. Williams, Signal & Telecommunications Engineer, London Midland Region, supported by Mr. T. S. Lascelles, Vice-President, Messrs. F. Downes and F. Horler, Past-Presidents, Messrs. E. G. Brentnall, F. B. Egginton, and M. Le Sueur, Members of Council, Mr. G. J. Dickinson, Hon. General Secretary, and Mr. B. Reynolds, Hon. Treasurer.

Lunch was served at York, where the members were welcomed by Mr. J. H. Fraser, Signal & Telecommunications Engineer, North Eastern Region, and his Chief Assistant Mr. G. C. Thew, who were accompanied by a number of technical staff. They were joined later by Mr. A. P. Hunter, Divisional Operating Superintendent, and Mr. H. R. Garth, Assistant Civil Engineer.

The visitors were then conducted round the whole of this interesting installation. The main control relay, telecommunications, and train describer rooms, and also the power sub-station, were all inspected in turn, and the details of their arrangement and working explained. The traffic was fairly considerable at the time. Visitors were thus able to see the operation of the apparatus under very favourable conditions, and the quiet manner in which the trains and shunting movements were dealt with was particularly noticeable.

The arrangement of the extensive wiring and cable runs and other engineering details, such as the sub-station plant, where the automatic action of the stand-by generating machinery was demonstrated, created much interest. Certain items of track apparatus, including an electro-pneumatic point movement, were opened up for inspection.

Tea was taken at the conclusion of the

inspection, when Mr. S. Williams expressed the thanks of all present to Mr. A. P. Hunter, and through him to the Chief Regional Officer, for the excellent facilities afforded; he also thanked Mr. Fraser, Mr. Thew, and their staff for the way in which they had organised the visit, and enabled so much to be seen in a relatively short time.

On the Institution side the arrangements had been worked out by the General Purposes Committee, whose Hon. Secretary, Mr. W. H. Challis, unfortunately was unable to be present, but to whom the thanks of the members were especially due. The party returned to London by the 6 p.m. train in special coaches added at York.

International Congress of Refrigeration

The eighth International Congress of Refrigeration is being held at Church House, Westminster, London, from August 29 to September 11. The work of co-ordination and synthesis of scientific and technical knowledge of the International Institute of Refrigeration is performed by seven specialised commissions, which meet periodically. Commission VIB covers refrigerated transport by land, and ten papers were presented at the Congress in this section, in addition to five more presented at joint sessions with two other commissions.

The subjects covered included: experiments by the Italian State Railways with fruit and vegetable transport with and without mechanical ventilation; use of refrigerator vans in the U.S.A.; perishables traffic on the Canadian railways; and standardisation of the types of transport of perishable foodstuffs in Europe.

One recommendation proposed was that the International Union of Railways should be the sole body to continue the study of a standard European refrigerated wagon; it has already made considerable progress in this direction.

In connection with the Congress an

exhibition was staged by British Railways at Kensington Olympia Station on September 3 and 4, as announced in our August 31 issue. Eleven examples of insulated and refrigerated rolling stock were on view, as follows:—

British Railways — Insul-x-Fish van and Insulfish van (fresh fish); FM container (meat, eggs, poultry); FR container (meat, fresh fruit); AF container (quick frozen foods, ice cream); and AX container (dry ice in bulk).

Operated by Interfrigo Company:— Transthermos Company (Germany) refrigerator van (fruit, shell eggs, fresh meat); STEF Company (France), insulated van (all goods needing low temperature); STEF Company (France), refrigerator van (fruit and vegetables); Anglo-Belgian Ferry Boat Company, refrigerator van (all perishables except fish); and Transfesa Company (Spain), refrigerator van (fruit from Spain). The last-mentioned wagon is built to run on Spanish-gauge or standard-gauge axles, to avoid transhipment at the Franco-Spanish frontier.

Institution of Locomotive Engineers

The first General Meeting of the Institution of Locomotive Engineers for the Session 1951-52 will be held on September 19, when Mr. J. Koffman will read a paper on "Dynamic Braking for Steam, Diesel and Gas-Turbine Locomotives." This and other General Meetings during the session will be held in the hall of the Institution of Mechanical Engineers, Storey's Gate, Westminster, London, S.W.1, at 5.30 p.m. The syllabus for the remainder of the session is as follows: October 17, the Presidential Address, by Mr. Julian S. Tritton; November 21, "Heavy Diesel Engines for Traction Purposes," by Mr. R. W. Stuart-Mitchell; December 19, "Railway Wind Tunnel Work," by Mr. D. W. Peacock; January 16, 1952, "New Steel Electric Railway Stock for the Indian Government Railways," by Messrs. S. E. Lord, H. H. C. Barton, and J. F. Thring; February 6, informal discussion on Passenger Comfort on Modern Coaching Stock; February 20, "Recent Developments

in Vacuum Brake Equipment," by Mr. G. C. Marsh; March 19, Annual General Meeting, "The Application of Welding to Locomotive Copper Fireboxes," by Mr. J. F. Harrison; April 16, "The Fell Diesel Mechanical Locomotive," by Lt.-Colonel L. F. R. Fell. The annual luncheon will be held at the Dorchester Hotel on March 7, 1952.

Staff & Labour Matters

Railway "Efficiency Committee"

A further meeting of the Special Joint Committee of Railway Executive and trades union representatives was held on August 29, when the reply of the three railway unions was given to the Railway Executive proposals for manpower economy. The Executive representatives undertook to consider these replies.

Heysham Labour Dispute

Settlement was reached on August 31 in the dispute which arose at Heysham over the transfer of the British Railways cargo vessel *Sieve League* from Holyhead to work as a cattle boat. Agreement came after a series of meetings on August 30 and 31, after which the crews of British Railways ships who had been on strike decided to sail, pending negotiation on their grievances. The men made this decision after an address by Mr. Percy Knight, General Secretary, National Union of Seamen. The signing on of the crews who had been paid off by British Railways, took place after the meeting.

Irish Seamen's Strike

Seamen members of the Irish Seamen's & Port Workers' Union at Dublin and other ports in the Republic struck on August 30 after the Irish Labour Court had recommended acceptance of an offer which falls short of the basic pay and overtime demands of the union. The dispute spread on August 31, when port workers, including pilot boat crews and berthing staff, joined the seamen. At the time of going to press no settlement had been reached. Steamship services operated by British Railways between Holyhead and Dun Laoghaire and Fishguard and Rosslare and Waterford are not affected.

Staff Recruiting Bonus

The N.U.R. has protested to the Railway Executive regarding the scheme for paying bonuses to railwaymen who introduced new recruits to the service and suggested that any surplus money would be better spent on raising wages. The bonus scheme has been introduced experimentally for a few weeks in the districts where the labour shortage is most serious. Railwaymen who bring in a recruit are paid 10s. and a further 10s. if the new man stays in railway employment for two months. The scheme was the subject of editorial comment in our August 17 issue.

RANSOME & MARLES BEARING CO. LTD.—The net profit made by the Ransome & Marles Bearing Co. Ltd. to June 30, after providing £119,621 (£103,648) for depreciation and £326,000 (£285,000) for taxes, amounted to £345,456, as compared with £309,859 for the previous twelve months. With the balance brought forward the total available is £456,080. The directors recommend the transfer of £100,000 to general reserve. A final dividend of 12½ per cent., with a bonus of 5 per cent., makes 25 per cent. for the year as before.

Contracts & Tenders

The Clayton Dewandre Co. Ltd., Lincoln, has received defence orders valued at about £1,000,000.

It was recently stated in the Board of Trade Special Register Information Service that the First Secretary (Commercial) at Montevideo has reported a call for tenders for 900 spiral springs for rolling stock by the Ferrocarriles y Tranvias del Estado. A copy of the full specifications, drawings and conditions of tender in Spanish is available for inspection by representatives of United Kingdom manufacturers at the Board of Trade, Commercial Relations & Exports Department (Industries Branch), London, S.W.1.

Tenders should be sent to the Secretary of the Administration, Calle Rio Negro, No. 1790, Montevideo, to arrive by September 28, the closing date.

A report from Brussels shown in the Board of Trade Special Register Information Service states that the Belgian State Railways have issued a call for tenders (No. 2652/462) for the supply of electro-mechanical signalling equipment as per specification. Tenders should reach the Société Nationale des Chemins de fer Belges, Direction du Matériel et des Achats, Brussels, before 2.30 p.m. on September 19.

A copy of the tender documents in French is available for inspection by representatives of United Kingdom manufacturers at the Commercial Relations & Exports Department (Industries Branch), Board of Trade, London, S.W.1. A second copy is available for loan to United Kingdom manufacturers in order of written application to the Department.

A further report from Brussels quoted by the Board of Trade Special Register Information Service states that the Belgian State Railways have issued a call for tenders (No. 2631—770) for the supply of twenty double bogie electric locomotives. Tenders should reach the Société Nationale des Chemins de fer Belges, Direction du Matériel et des Achats, Brussels, before November 28.

A copy of the tender documents in

French is available for inspection by representatives of United Kingdom manufacturers at the Commercial Relations & Exports Department (Industries Branch), Board of Trade. A second copy is available for loan to United Kingdom manufacturers in order of written application to the Department; reference CRE (IB) 69741/51 should be quoted.

Notes and News

Vacancy for Draughtsman.—A draughtsman is required, with experience of railway rolling stock, by a firm in the North Midlands. See Official Notices on page 279.

Traction Engineers Required.—Applications are invited for posts of railway engineers required by a manufacturing firm for control design or general project engineering. See Official Notices on page 279.

Engineer Required.—A firm of Consulting and Inspecting Engineers require the services of a qualified engineer for employment as an assistant engineer in its Glasgow office. See Official Notices on page 279.

Vacancies with an Insurance Organisation.—An insurance organisation with extensive connections in the transport industry has vacancies on its outdoor staff for a number of young men. See Official Notices on page 279.

Vacancy for an Engineer.—An engineer with experience in electric traction work is required by British Insulated Callender's Cables Limited, Prescot, for the development of electro-mechanical overhead equipment for trolleybus systems. See Official Notices on page 279.

Re-Siting of Lochluichart Station.—The Scottish Region announces that with the development of the Luichart project of the North of Scotland hydro-electric scheme, the level of Loch Luichart will be raised to such an extent that a portion of the line near Lochluichart Station, 17 miles west of Dingwall on the Kyle of Lochalsh branch, together with the station and certain other

Telling the Public about New Works



Where new works are in progress the London Midland Region is now displaying signs telling the public what is being done. The hoarding shown above is at Euston

premises, will be submerged. The railway line and Lochluichart Station are to be moved to a higher level, and a start has now been made with the preparatory work in connection with the deviation line, but it is unlikely that the work will be completed for some time.

Vacancy for Power Supply Engineer.—The Railway Executive invite applications for the position of Power Supply Engineer, London Bridge, Southern Region. Candidates should be trained engineers with thorough technical knowledge of electric power supply and transmission. See Official Notices on page 279.

Sunday Closing of London Transport Station.—London Transport announces that Aldersgate Station on the Metropolitan Line will in future be closed on Sundays. This is an economy measure undertaken because of the very small number of passengers using the station on Sundays. The nearest London Transport stations are Farringdon or Moorgate.

Petition to Minister of Transport.—The petition organised by Driver Trevor Curtis, of Swansea, demanding a public inquiry into allegedly inefficient administration of the Western Region has been lodged with the Ministry of Transport. The modification and standardisation of safety devices in the Western Region, to which the petition refers, were discussed in our June 22 issue.

Valves and Pumps at Olympia.—A good idea of the scope of the valves made by the Saunders Valve Co. Ltd. is obtained from the selection exhibited at Olympia. Linked with the valve exhibits in a practical way are two 1½ in./2 in. Safran self-contained pumps powered by ¼-h.p. motors. The overall compactness of these pumps is attributable to the Unishaft construction in which pump shaft and motor shaft are one.

Chancellor of Exchequer on Profits.—At the Trades Union Congress at Blackpool on September 4, Mr. Hugh Gaitskell, Chancellor of the Exchequer, re-defined the Government attitude to profits. His main arguments were that home demands must be limited to keep down profits at home and to encourage exports; that prices must be controlled to keep profits to a reasonable level; and that high profits must be prevented from leading to increased money demand through higher dividends.

Display of Welding and Cutting Equipment.—At Olympia this year the British Oxygen Co. Ltd., is showing a selection of oxy-acetylene welding and cutting plant. Light equipment includes the DH and CH general-purpose blowpipe, as well as hand cutters and Cutogen combined welding and hand cutting blowpipes. Portable welding outfits, consisting of blowpipes, regulators, and oxygen and acetylene cylinders mounted on lightweight trolleys, are on view, and the Argonarc process is featured, together with the latest additional equipment, which includes a water-cooled shield on the Mark III torch for continuous heavy-duty work.

North Sunderland Railway to Close.—The privately-owned four miles of single line railway linking the fishing port of Seahouses with the main East Coast line at Chathill will close on October 27. The directors of the North Sunderland (Light) Railway Company have announced that they cannot carry on because of continuing financial losses. An approach is being

made by the parish council to British Railways to continue the service which is the means of carrying fish catches to the main line. The railway, which was opened in 1895, is also well known to holiday makers.

British Railways Coal and Steel Carriings.—During the weekend to September 3 British Railways cleared 361,650 tons of coal from deep-mine pits and open-cast sites, making a total of 3,215,850 tons for the week. The latest figures for iron and steel show that 176,797 tons were conveyed during the week ended August 25 from the principal steelworks.

Air-Conditioning Plant on View.—Among the exhibits shown by Keith Blackman Limited at the Engineering, Marine & Welding Exhibition are a selection of air-conditioning units, axial type fans, and blowers. There can also be seen a Tornado dust exhausting and collecting unit and several examples of propeller and centrifugal type fans.

Harco Perforated Metals.—An extensive range of Harco perforated metals made by G. A. Harvey & Co. (London) Ltd. can be seen at Olympia. Other exhibits include radiator covers, pipe guards, grilles, and so on, together with wirework of various kinds for domestic and industrial needs. Included also on this stand are examples of Harco steel equipment and furniture for office use.

Cooper & Co. (Birmingham) Ltd.; Transfer of Officers.—The main administrative offices of Cooper & Co. (Birmingham) Ltd. have been transferred from Birmingham to the South Wales factory, the address of which is Brynmawr, Breconshire, telephone, Brynmawr 312. This change is due to the fact that part of the Birmingham premises are scheduled for acquisition under a town planning scheme.

Industrial Instruments.—Recent additions to the range of equipment made by Smiths Industrial Instruments Limited may be seen at Olympia. These include a light-duty engine service counter for indicating the running period of engines and driven equipment, providing information for maintenance and service, and also an example of the heavy-duty type designed to withstand rough handling. On the same stand David Harcourt Limited show a new series of pressure and vacuum gauges known as the Monogauge range.

Re-equipped Locomotive Stores at Darlington Works.—General Sir Daril Watson, Member of the Railway Executive, accompanied by Mr. B. X. Jessop, Assistant Chief Regional Officer, North-Eastern Region, Mr. P. R. Hickman, Chief Officer (Stores), Railway Executive, Messrs. K. J. Cook, Mechanical & Electrical Engineer, and A. Forbes Smith, Stores Superintendent, Eastern and North-Eastern Regions, and Mr. C. R. Hinds, Locomotive Works Manager, Darlington, on September 5 visited the newly equipped locomotive stores at Darlington Works.

Anglo-Irish Services.—British Railways steamship services between Heysham and Belfast have been operating normally since settlement of the dispute at Heysham on August 31. The Holyhead-Dun Laoghaire, Fishguard-Rosslare, and Fishguard-Waterford services, which are operated by British Railways vessels, have not been affected by the strike at ports in the Irish Republic, though at the time of going to press the Fishguard-Cork and other

services operated in connection with British Railways train services were temporarily suspended. The meeting between representatives of British Railways, of the Government of the Irish Republic, C.I.E., the Irish Tourist Board and others concerned with the Holyhead-Dun Laoghaire service takes place in Dublin today (Friday).

Railway Strike Shuts United States Steel Works.—The Lackawanna works of the Bethlehem Steel Company was closed on August 20 after a walkout by about 300 employees of the South Buffalo Railway, which serves the works. Nearly 17,000 Bethlehem employees became idle as a result.

Accident near Rossett, Denbighshire.—At about 1.15 a.m. on September 3 the 11 p.m. (September 2) Birkenhead to Swansea livestock train, made-up to 51 wagons, parted on a gradient between Rossett and Gresford, Denbighshire, Western Region, and a number of wagons ran back and became derailed, blocking both lines. About ten cattle were killed outright and several others had to be destroyed. Western Region express trains were temporarily diverted via Whitchurch and Wem and normal working was resumed at 6.30 p.m.

Closing of Stations: London Midland Region.—The London Midland Region announces that the following stations will be permanently closed for passenger traffic as from September 10: Dinas, between Afon Wen and Caernarvon; Pinxton & Selston, between Mansfield and Codnor Park; Baxenden, between Bury and Accrington; and Halewood, between Warrington and Garston. Heanor North (Midland) Goods Depot has been closed as from September 1 and alternative arrangements have been made for the handling of freight traffic.

Welding Equipment at Olympia.—The exhibits on the Quasi-Arc Co. Ltd. stand at Olympia include a complete range of a.c. arc-welding single-operator transformers and a motor generator unit. Other plant includes a diesel-engine driven 300-amp. mobile welding unit. There are continuous demonstrations of welding technique, including the use of the recently developed Quasi-Arc pipe welding electrode and pipe welding molybdenum bearing electrode for welding pipe butt joints *in situ*. Also demonstrated is the Unionmelt submerged arc automatic welding equipment.

British Air Line Losses Reduced.—The reports of the British air line corporations for the year ended March 31 show the best results to date although both continued to lose money. The combined deficit was £5,544,695, as compared with £9,155,481 in 1949-50, an improvement of 39 per cent. The adverse balance of British European Airways was down by 28.2 per cent. to £979,267. During the year B.E.A. increased its traffic, reduced its deficit, extended its route pattern, and, generally, made financial progress. Traffic rose by 23 per cent. and the total cost of each unit of work done was reduced by 9 per cent. During the past two years, while B.E.A. traffic has been doubled, its loss had been reduced to nearly one-third of the 1948-49 figure.

Proposed Steelworks Expansion.—Plans have been submitted to the Iron & Steel Corporation by the United Steel Companies Limited for further extensions to

OFFICIAL NOTICES

LONDON Consulting and Inspecting Engineers require the services of a Qualified Engineer for employment as Assistant Engineer in their Glasgow office. Applicants must have served a recognised apprenticeship with a reputable firm of mechanical engineers. Some inspection and drawing-office experience is essential, sea-going and electrical experience is desirable. Applicants should be chartered engineers but applications from persons holding H.N.C. or B.O.T. 1st Class ticket will be considered. Age limits 30 to 40 years.—Apply Box 398, c/o Dawson's, 129, Cannon Street, E.C.4.

WE buy used or unserviceable Steel Files at good prices in lots of 2 cwt. or more.—THOS. W. WARD LIMITED, R. S. Department, Albion Works, Sheffield.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

ENGINEER with experience in electric traction work required by British Insulated Callender's Cables Limited, Prescott, for the development of electro-mechanical overhead equipment for trolleybus systems. Permanent position with superannuation and bonus schemes after twelve months' probationary service. Applications, giving details of qualifications and experience should be made in writing to: The Staff Officer, B.I.C.C. Ltd., Prescott, Lancs.

VACANCY for Power Supply Engineer, Mechanical & Electrical Engineering Department, London Bridge (Post R.241).—The Railway Executive invite applications for the position of Power Supply Engineer, London Bridge, Southern Region, the approximate commencing salary range for which is £1,000-£1,100 per annum, according to qualifications. The successful candidate will be eligible for membership of a Superannuation Fund scheme, subject to the requirements of the Rules. Candidates should be trained engineers with thorough technical knowledge of electric power supply and transmission; practical experience in operation and maintenance of generating plant, traction sub-stations. Good administrative ability essential. Post vacant January, 1952. Applications, giving full particulars of education, age and experience, should be sent within 14 days to the SECRETARY, RAILWAY EXECUTIVE, 222, Marylebone Road, N.W. Any approach except by direct and written application from candidates themselves will be a disqualification.

TRACTION ENGINEERS are required by a well-known manufacturer for control design or general project engineering. Applicants must be qualified engineers and have served a recognised apprenticeship. A requirement is experience in the design, manufacture or operation of electric or diesel-electric traction equipment. Write, in confidence, giving full details of previous experience, mentioning ref. DEA to Box 204, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

DRAUGHTSMAN required with experience of railway rolling stock, by a firm situated in North Midlands. Salary in accordance with previous experience and qualifications.—Apply Box 203, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

JUNIOR TRAFFIC OFFICIALS with railway traffic apprenticeship experience. Age about 25, single, required for service on railways in Peru and Bolivia. Apply to the Secretary of the PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

AN Insurance Organisation with extensive connections in the transport industry has vacancies on its outdoor staff for a number of young men. Excellent opportunities to those possessing good personality and anxious to succeed. Write stating age to Box 197, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

THE "PAGET" LOCOMOTIVE. Hitherto unpublished details of Sir Cecil Paget's heroic experiments. Eight single-acting cylinders with rotary valves. An application of the principles of the Willans central-valve engine to the steam locomotive. By James Clayton, M.B.E., M.I.Mech.E. Reprinted from *The Railway Gazette*, November 2, 1945. Price 2s. Post free 2s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

the Appleby-Frodingham works. The chief features of the project will be two new blast furnaces and large crushing and blowing plant. Appleby-Frodingham is already the largest combined iron and steel plant in Britain. The main object of the development is to increase the capacity of the works to keep pace with its steel making possibilities, and to supply iron to the works of Steel, Peech & Tozer, Ltd.

Proposals for Denationalisation of Road Haulage.—A special meeting of the National Council of the Road Haulage Association will be held in London on September 26 for the purpose of agreeing detailed proposals on the best way of effecting denationalisation of road haulage.

British Engineers' Association at Olympia.—As the chief sponsoring organisation of the Engineering, Marine & Welding Exhibition, which is now being held in London at Olympia, the British Engineers' Association has arranged a stand in the Grand Hall as an information centre. Apart from an interesting diagrammatic representation of some of the contracts which the Association maintains in the national and international fields, there are also attractively represented the salient facts concerning competition in the engineering industry abroad, and a summary survey of further outlets in some 50 countries.

The Engineers' Guild and the "Closed Shop."—The representations made by the Engineers' Guild Limited to the Edmonton Borough Council regarding insistence by the latter on trade union membership as a condition of employment in engineering and other posts under the council, were referred to in our June 22 issue. The Engineers' Guild now announces that the Minister of Transport has refused to make a grant towards the salary of the Borough Engineer of Edmonton, an advertised vacancy, unless the condition of employment (of trade union membership) is withdrawn. The position is to be re-advertised without the objectionable condition.

Leopoldina Payment Delay.—The Brazilian Ministry of Finance has issued a statement laying the blame for the delay in paying compensation due to the Leopoldina Railway entirely on the company, which, it alleges, has failed to present certain documents "indispensable to

the transfer of its rights and assets." A company spokesman in London has said that he does not know what documents are concerned or when they were asked for. Since the beginning of May two representatives of the company have been available to the Ministry, and it is considered that there has been sufficient time for such matters to be raised.

Cheap Tourist Travel in Italy.—A new flat-rate ticket enabling foreigners to travel anywhere and any distance on Italian railways for periods of ten or twenty days will be available from September 10. Third class tickets will cost 10,000 lire (nearly £6) for ten days and 15,000 lire for twenty days. First class rates are about twice the third class charge.

Closing of Eastern Region Stations.—As from October 1 Eickington & Renishaw Station on the Eastern Region will be closed to passenger train traffic except for certain special excursion trains, and also for freight train traffic. Facilities for passengers, parcels, and freight traffic are available at Renishaw Central Station, and frequent bus services are in operation in the district.

New Railways in Spain.—An agency message states that the last 60 miles of the Santander-Mediterranean line are to be completed as soon as possible. The section concerned is from Santander to Ciudad Dusanse. The whole line (about 480 miles long from Santander to Valencia) was begun in the 1920s, but its completion has lapsed because of shortage of steel and signalling equipment. The direct lines under construction from Madrid to Burgos and Madrid to La Coruña, via Zamora and Orense, are also to be completed rapidly.

A.B.C. Coupler & Engineering Co. Ltd.—Having regard to the writing down of the ordinary share capital in 1938, and following the intimation in the Chairman's statement with the report issued in July, the directors of the A.B.C. Coupler & Engineering Co. Ltd. have decided to increase the authorised capital of the company to £200,000 by creation of an additional 2,000,000 ordinary shares of 1s. ranking *pari passu* with the existing 1,200,000 shares of 1s. and to capitalise £38,499 14s. 0d., part of the amount

standing to the credit of the general reserve, and also to issue 769,994 fully-paid ordinary shares of 1s. each to the ordinary shareholders. This is subject to the necessary resolutions of the shareholders at an extraordinary general meeting to be held on September 28.

English Electric Co. Ltd.—The interim dividend on the £4,128,520 ordinary capital of the English Electric Co. Ltd. is being raised to 5 per cent., less tax. For 1950, an interim dividend of 4 per cent. was followed by a final of 11 per cent., making a total of 15 per cent., against 10 per cent. for 1949, when final payment was 6 per cent.

Forgings and Crankshafts at Olympia.—An outstanding exhibit on the stand of the English Steel Corporation Limited at Olympia is a machined forged gearwheel rim 11 ft. 9 in. dia. weighing 7½ tons. This is follow-forged from a solid ingot and has no welds or joints. To make four such rims a 120-ton ingot is required, and only forging presses of exceptional size can forge ingots of this weight. Another exhibit is an R.R. continuous grain-flow crankshaft press forged by a new process. Other exhibits include cutting tools.

Derailed in Assam.—At least eleven persons were believed killed and 27 injured when a Calcutta-bound express became derailed about 220 miles from Gauhati, Assam, on August 26. Official casualty figures released by the Assam Railway Officer put the dead at seven, but a passenger said he counted 11 bodies and he feared several others might have been washed away in flood waters. The derailment was caused by heavy rain and floods washing away a culvert and loosening the trackbed. The engine and three bogie coaches were bogged in the flood waters, while the rest of the coaches remained on the track, averting a major catastrophe.

American Car & Foundry Company.—The report for the year ended April 30, 1951, of the American Car & Foundry Company shows a net profit after tax of \$2,067,514, equivalent to \$1.08 a share on the common stock after payment of the full dividend of \$7.00 per share on outstanding preferred stock. For the previous year net income after tax was \$436,193. The consolidated balance-sheet as of

April 30, 1951, showed total current assets of \$81,247,368, against total current liabilities of \$34,673,437; this compares with current assets of \$58,550,413 and current liabilities of \$14,947,610 to April 30, 1951. Net sales were \$119,657,304, compared with sales of \$147,470,154 for the previous year.

Renaming of Stations in North Eastern Region.—As from September 30, Halifax, Morley, Ravenshorpe, Sandal & Walton, and Whitby stations will be renamed respectively Halifax Town, Morley Low, Ravenshorpe Lower, Walton, and Whitby Town.

Canadian Pacific Earnings.—Net earnings of the Canadian Pacific Railway in July amounted to \$1,144,802 as compared with \$1,933,000 in June. Gross earnings of the company in July totalled \$35,794,952 against \$36,438,000 in the previous month. Working expenses were \$34,650,150 as compared with \$34,505,000 in the previous month.

International Nickel Company of Canada.—The consolidated net sales of the International Nickel Company of Canada for the quarter ended June 30, amounted to \$66,351,271, as compared with \$58,733,172 for the corresponding quarter of 1950, and the net earnings were \$14,653,656 against \$12,056,576, after allowing for depreciation and tax. For the half-year, net earnings totalled \$29,385,046, as compared with \$20,385,591 for the first half of 1950.

Aldershot & District Traction Co. Ltd.—Traffic receipts and other revenue of the Aldershot & District Traction Co. Ltd. for the year ended May 31 were £903,770 as compared with £910,080 last year. The report states that the further increase in duty on fuel imposed by the Budget in 1951 occurred after the lodgement of an application leading to a second increase in fares. As a result yet another application for increase in fares will have to be made.

Forthcoming Meetings

September 7 (Fri.).—Scottish Society of Students of the Locomotive, at 302 Buchanan Street, Glasgow, C.2, at 7.30 p.m. "The Caprotti Valve Gear," by Mr. Peter Fraser.

September 7 (Fri.) to 9 (Sun.).—Permanent Way Institution, London Section, joint meeting with Irish Section and visit to Dublin.

September 8 (Sat.).—Irish Railway Record Society, visit to U.T.A. Works at Dun-cruce Street, Belfast.

September 11 (Tue.) to 13 (Thu.).—Conference arranged by the Institution of Mechanical Engineers and the American Society of Mechanical Engineers, at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1. General discussion on "Heat Transfer."

September 15 (Sat.).—Railway Students' Association, coach tour leaving Jorking North Station at 2 p.m.

September 15 (Sat.).—Permanent Way Institution, Manchester & Liverpool Section, in the Temperance Institute, London Road, Southport, at 2.30 p.m. "Relaying," by Mr. W. Cliffe.

September 19 (Wed.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1., at 5.30 p.m. "Dynamic Braking for Steam, Diesel and Gas Turbine Locomotives," by Mr. J. Koffman.

Railway Stock Market

Markets were cautious earlier in the week because of a general tendency to await the outcome of Mr. Gaitskell's visit to Washington. It is generally believed the Chancellor will tell the U.S. that we cannot begin repaying the 1946 U.S. dollar loan at the end of the year, and that we cannot remove exchange restrictions at this stage. There is however a possibility that the U.S. visit may lead to other important decisions; meanwhile, buyers are showing caution in stock markets. On the other hand, there has again been little selling. As a result, many shares are only in short supply in the market, and because of this, moderate buying would probably result in a sharp upward adjustment of prices. Dividend limitation is continuing to affect sentiment in the industrial sections, although there is of course the possibility of a General Election which could mean that the Gaitskell plan would not become law.

Foreign and overseas securities which are unaffected by dividend limitation remained prominently active, particularly Canadian stocks, and foreign rails attracted rather more attention, though in most cases movements were small. Leopoldina stocks, however, eased on the statement issued by the Brazilian Ministry of Finance contending that the delay in making the compensation pay-out is due to certain technicalities not having been carried out by the company. This statement came as a complete surprise in London, where it is hoped that it will not be taken as an excuse for further long delay in paying out the compensation money which is, of course, already deposited over here. In London it was not known to what the Brazilian statement referred in its reference to documents indispensable to the transfer of the company's rights and assets that have to be presented. Leopoldina ordinary eased to 10½, the preference stock to 25½, the 4 per cent. debentures to 92½ and the 6½ per cent. debentures to 139. Leopoldina Terminal debentures were back to 91 and the ordinary units 1s. 1½d. Elsewhere, San Paulo 10s. units were around the lower level of 14s. 3d. to which they receded recently when the annual report indicated the prospect of further long delay before there is a settlement of the company's additional compensation claims. Brazil Rail bonds were quoted at £6½.

United of Havana stocks became much quieter, awaiting the nationalisation terms.

The 1906 debentures have been changing hands around 20½ at the time of writing. Nitrate Rails shares were 23s. 9d. and Taltal 19s. There was again less activity in Antofagasta stocks, with the result that the ordinary eased to 14½ and the preference to 71½. In other directions, La Guaira ordinary stock has been firm at 92 and Bolivar "C" debentures 77. Manila stocks became more active with the "A" debentures at 82, while the preference shares improved to 9s. 9d. Mexican Central "A" bonds firmed up to 62 and National of Mexico 4½ per cent. non-assented were 41.

Canadian Pacific remained prominent in a further rise in Canadian securities, and at 64½ were again strong on higher dividend estimates. The 4 per cent. debentures, however, eased to 93 and the 4 per cent. preference stock was 75½ at which there is an attractive yield, even allowing for the fact that the preference stock is non-cumulative as to dividend.

Engineering shares have been firmer, though price movements were generally small. Buyers were coming in because in many cases yields are attractive, and it is assumed that rearmament work should keep profits at a favourable level. Guest, Keen were 64s. 6d. on latest estimates of the maximum dividend that will be permitted under the Gaitskell freeze. John Brown at 48s. 6d. responded to Lord Aberconway's annual speech which emphasised the company's success in extending engineering and other interests to compensate for the loss of income arising from nationalisation of the group's steel works. Cammell Laird strengthened on the interim dividend, and Vickers improved on expectations in the market that the interim will also be unchanged in this case. Babcock & Wilcox have responded to reports of a record order book for the company, while Allied Iron rose to 61s. 3d.

T. W. Ward have been steady at 70s. 3d. Shares of locomotive builders and engineers generally changed hands around the same levels as a week ago. Hurst Nelson were 59s. at Glasgow, and Birmingham Carriage 37s. North British Locomotive were 18s. 9d., Vulcan Foundry 27s. and Beyer Peacock 31s. with Gloucester Wagon 16s. and Wagon Repairs 5s. shares 14s. 9d. Charles Roberts strengthened to 99s. on further consideration of the annual report and the decision to "split" each £1 unit into four of 5s. each.

Traffic Table of Overseas and Foreign Railways

	Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date			
				Total this year	Inc. or dec. compared with 1949/50		Total 1950/51	Increase or decrease		
Canada South & Cen. America	Antofagasta ...	811	24.8.51	£ 121,300	+	£ 42,710	34	£ 4,021,110	+	£ 1,917,836
	Costa Rica ...	281	June, 1951	c1,121,590	+	c25,461	52	c11,300,123	+	c720,146
	Dorada ...	70	July, 1951	37,711	—	1,667	30	251,471	—	19,079
	Inter. Ctl. Amer. ...	794	July, 1951	\$1,039,745	—	\$53,042	30	\$7,971,396	—	\$152,622
	Paraguay Cent. ...	274	24.8.51	\$364,540	+	\$178,639	8	\$2,663,985	+	\$1,223,493
	Peru Corp. ...	1,050	July, 1951	\$792,000	+	\$450,000	4	\$7,925,000	+	\$450,000
	" (Bolivian Section)	66	July, 1951	Bs. 13,029,000	+	Bs. 5,468,000	4	Bs. 13,029,000	+	Bs. 5,468,000
	Salvador ...	100	May, 1951	c138,000	+	c31,000	48	c1,867,000	+	c136,000
	Taltal ...	147	July, 1951	\$1,790,000	+	\$558,100	4	\$1,790,000	+	\$558,100
	Canada	Canadian National†	23,473	July, 1951	17,681,000	+	895,000	30	117,434,000	+
Canadian Pacific†		17,037	July, 1951	11,932,000	+	873,000	30	89,924,000	+	10,763,000
Various	Barsi Light* ...	167	July 1951	55,627	+	9,833	17	168,750	+	33,705
	Egyptian Delta ...	607	10.4.51	17,513	—	267	4	17,513	—	267
	Gold Coast ...	536	June, 1951	246,509	+	10,058	13	803,671	+	81,153
	Mid. of W. Australia	277	June, 1951	43,627	+	8,943	52	497,708	+	117,766
	South Africa ...	13,398	4.8.51	1,926,303	+	180,080	18	34,024,867	+	4,987,713
	Victoria ...	4,744	Apr., 1951	1,793,401	+	71,930	43	—	—	—

* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at \$3 to £1